

"OFFICIAL JOURNAL OF THE UNITED STATES ATV SOCIETY"

AMATEUR TELEVISION MAGAZINE™

AUGUST 1984

VOL. 14 NO. 8

PUBLISHED MONTHLY

"OUR 17TH YEAR"

\$2.00

FALL 1984 A5/USATVS NATIONAL CONFERENCE TO BE HELD IN CHICAGO!

USATVS FILES COMMENTS ON CONTROVERSIAL 1240-1300 MHZ. ARRL BANDPLAN REORGANIZATION

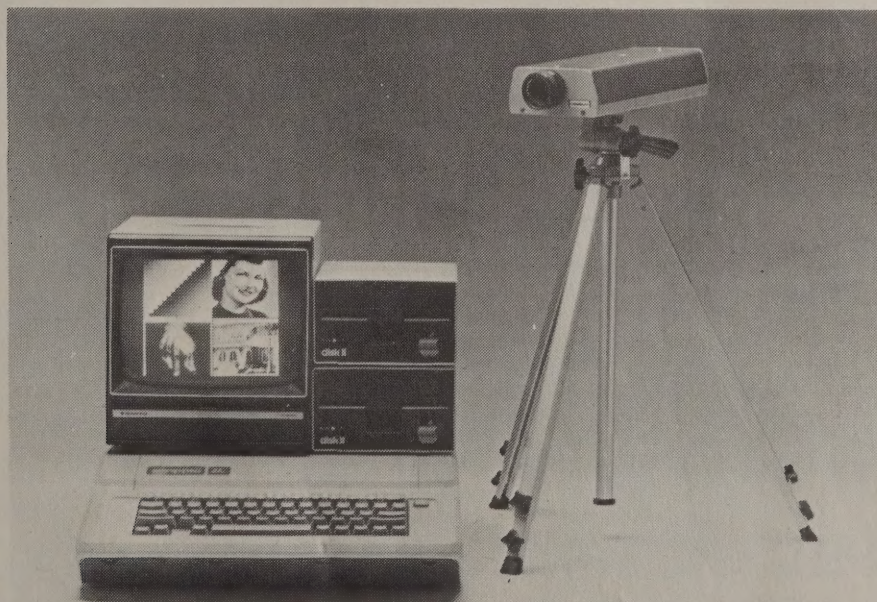
AUGUST "NORTH AMERICAN FSTV-UHF CONTEST" EXPANDED TO 7 DAY OPERATING PERIOD!

NEW JAPANESE (UC-5503) COLOR AND APPLE COMPUTER SSTV CONVERTERS RELEASED!

• A5/USATVS Organizational Statement	1	• How to put on Type-N Connectors (KLM)	24
• Chicago 1984 "A5" National ATV Conference Details!	2	• VOR-Video Operated Relay Circuit -W6ORG	25
• Q. & A. with "A5" Editor WBOQCD	4	• Using KLM-440-6 Antennas for Horiz. Omni Pattern (BRATS)	26
• Commercial "STEREOSCOPIC" TV System Invented! -KE6KB	6	• 2/4 Way Stacking for J-Beam Antennas! -G3BVU/1	27
• Revised New SE1a "Single Board" ATV Rig Available -W9NTP	10	• 12 Element Wideband YAGIS Antenna for ATV -W5VMD	29
• 1984 North America FSTV-UHF Contest Details!	13	• K6AEP Quits TRS80C Software	32
• Mitsubishi P50U Video Printer Update!	14	• SSTV-ON-THE-BANDS with W2WHK	34
• FSTV Subcarrier Audio Booster! -WA9EUN	15	• New Commsoft Apple II SSTV Image Enhancer System	36
• Video Modulator Circuit for Tetrode Amplifiers! -WA9EUN	17	• New Japanese Color SSTV Converter!	38
• USATVS/ARRL 1240-1300Mhz. Bandplan Proposal -W6ORG	18	• "A5" Classified Ads!	40

SPECIAL EXPANDED ATV ISSUE!

AND LOTS MORE! STAY TUNED TO THIS CHANNEL...



COMMSOFT'S New Design "Photo Imager" SSTV System for Apple II Computers.
(See Story on Channel 36)

State
of the art



by

K.V.G.

9 MHz CRYSTAL FILTERS

MODEL	Appli- cation	Band- width	Poles	Price
XF-9A	SSB	2.4 kHz	5	\$53.15
XF-9B	SSB	2.4 kHz	8	72.05
XF-9B-01	LSB	2.4 kHz	8	95.90
XF-9B-02	USB	2.4 kHz	8	95.90
XF-9B-10	SSB	2.4 kHz	10	125.65
XF-9C	AM	3.75 kHz	8	77.40
XF-9D	AM	5.0 kHz	8	77.40
XF-9E	FM	12.0 kHz	8	77.40
XF-9M	CW	500 Hz	4	54.10
XF-9NB	CW	500 Hz	8	95.90
XF-9P	CW	250 Hz	8	131.20
XF910	IF noise	15 kHz	2	17.15

10.7 MHz CRYSTAL FILTERS

XF107-A	NBFM	12 kHz	8	\$67.30
XF107-B	NBFM	15 kHz	8	67.30
XF107-C	WBFM	30 kHz	8	67.30
XF107-D	WBFM	36 kHz	8	67.30
XF107-E	Pix/Data	40 kHz	8	67.30
XM107-SQ4	FM	14 kHz	4	30.15

Export Inquiries Invited.

Shipping \$3.50

MICROWAVE MODULES VHF & UHF EQUIPMENTS

Use your existing HF or 2M rig on other VHF or UHF bands.

LOW NOISE RECEIVE CONVERTERS

1691 MHz	MMk1691-137	\$249.95
1296 MHz	MMk1296-144	149.95
432/435	MMc432-28(S)	74.95
439-ATV	MMc439-Ch x	84.95
220 MHz	MMc220-28	69.95
144 MHz	MMc144-28	54.95

Options: Low NF (2.0 dB max., 1.25 dB max.), other bands & IF's available

LINEAR TRANSVERTERS

1296 MHz	1.3 W output, 2M in	MMt1296-144	\$339.95
432/435	10 W output, 10M in	MMt432-28(S)	269.95
144 MHz	10 W output, 10M in	MMt144-28	179.95

Other bands & IFs available.

LINEAR POWER AMPLIFIERS

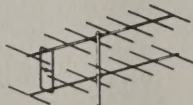
1296 MHz	20 W output	UT1296BL	\$450.00
432/435	100 W output	MML432-100	399.95
	50 W output	MML432-50-S	239.95
	30 W output	MML432-30-LS	189.95
144 MHz	100 W output	MML144-100-LS	269.95
	50 W output	MML144-50-S	214.95
	30 W output	MML144-30-LS	109.95
	25 W output	MML144-25	99.95

All models include VOX T/R switching.

"L" models 1 or 3W drive, others 10W drive.

Shipping: FOB Concord, Mass.

DIRECT FROM ENGLAND J-BEAM ATV ANTENNAS



420-450 MHz MULTIBEAMS

48 Element	70/MBM48 15.7 dBd
88 Element	70/MBM88 18.5 dBd

144-148 MHz J-SLOTS

8 over 8 Hor. pol D8/2M	12.3 dBd
-------------------------	----------

(See Special)

\$75.75
105.50

\$63.40

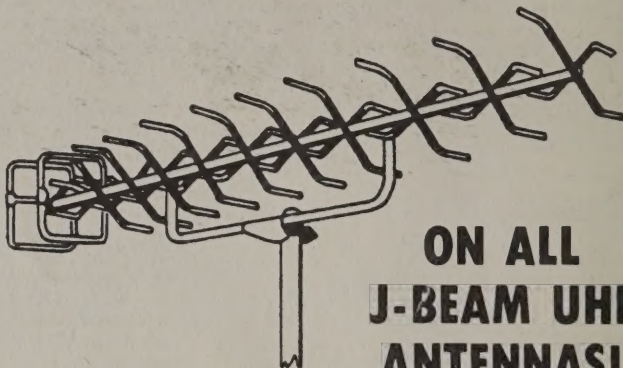
UHF LOOP YAGIS

1250-1350 MHz 28 loops 1296-LY 20 dBi	\$49.75
1650-1750 MHz 28 loops 1691-LY 20 dBi	\$59.75

Order Loop-Yagi connector extra:

Type N \$14.95, SMA \$5.95

PRICE REDUCTIONS



ON ALL J-BEAM UHF ANTENNAS!

TAKE ADVANTAGE OF DX OPENINGS!

Extend your workable UHF range with either the 48 or 88 element model J-Beams from England! We've extended these special prices as long as stock lasts! Send us your order today!

70/MBM 48 Element ~~Reg. \$75.75~~ **Now! \$59.95**

70/MBM 88 Element ~~Reg. \$105.50~~ **Now! \$89.95**

NEW! 11.3 db gain

10 + 10 XY J-Twist (2M) ~~Only \$79.95~~

PMH2-70 Phasing Harness (MBM48or88) **\$17.75**

PHM4-70 Phasing Harness (MBM48or88) **\$35.50**

WE STOCK J-BEAM MOUNTING FRAMES

"We are now stocking KENPRO ROTORS too!"

SHIPPED RIGHT TO YOUR DOOR!

Send 40¢ (2 stamps) for full details of all your VHF & UHF equipment and KVG crystal product requirements.



USE
YOUR
CREDIT
CARD



Mass. residents must add 5% sales tax.

"SAY YOU SAW IT IN A5 MAGAZINE!"

SPECTRUM INTERNATIONAL INC.
P.O. Box 1084A, Concord, Mass. 01742 USA
(617) 263-2145

A5 AMATEUR TELEVISION MAGAZINE

THE OFFICIAL JOURNAL OF THE UNITED STATES ATV SOCIETY

"FOR THE SPECIALIZED COMMUNICATION RADIO AMATEUR"

A5 Amateur Television Magazine (ISSN 1279-4772) is published by Mike Stone WB0QCD of Lowden, Iowa (319-944-7669 answering service) USA/CANADA/MEXICO and foreign subscription information: \$10.00 (6 issues), \$20.00 (12 issues), \$38.00 (2 years), \$56.00 (3 years), \$400.00 (Life). Surface rate foreign add \$6.00 per year, air mail foreign add \$26.00 per year. Second class postage paid at Lowden, Iowa with additional mailing office located at Davenport, Iowa. POSTMASTER: Send address changes to A5 ATV Magazine, P.O. Box H, Lowden, Iowa -52255-0408. Publisher reserves all rights. Reprint privileges granted to members subject to proper creditation of source, Volume/Issue number and address information

QCD PUBLICATIONS, INC., P.O. BOX H, LOWDEN, IA. 52255

Assembly

Mike Stone WB0QCD
Pat Mussig
Paul Mooney
Ray & Carolyn Houston

Photography

Mike Stone WB0QCD
Rose Stone KA9SUT
Dave Williams WB0ZJP
Max Gould K6GLG
Ken Barber W2DTC

Advertising

Mike Stone WB0QCD
Henry Ruh KB9FO

Word Processing

Pat Mussig
Claudia Jay

PRODUCTION STAFF

Current Editor/Publisher: Mike Stone WB0QCD
Past Publishers: Martin Balk WB2SZW, Ron Cohen K3ZKG
Henry Ruh KB9FO

Retail Sales

Mike Stone WB0QCD
Ralph Wilson WBOESF

Mailing Service

Jim O' Brien
Jill Carter
Danny Eckstein
Matt Kakert
Norma Dykes
Sue Carner
Karen Bailey
Sandy Verdon
Colette Hildbrand
L.E. Chute Co.

Videotape Programming

Mike Stone WB0QCD
Don Hartman KA9VBV
Bruce Brown WA9GVK/4
Frank Wolczak WA0IWF
Henry Ruh KB9FO
Bill Pasternak WA6ITF
John Fox WB2LLB/4

Printing

Jim O'Brien,
L.E. Chute Company
Ray Houston,
Quad City Printing

Research/Product Testing

Mike Stone WB0QCD
Tom O'Hara W6ORG
Bruce Brown WA9GVK/4
Don Miller W9NTP
Steve Bruce WA4OAA
Gary Adams N9GA

Accounting

Dean Claney C.P.A.
Pat Mussig
Rose Stone KA9SUT

FCC Legal Affairs

Henry Ruh KB9FO
Bruce Brown WA9GVK/4
Jim Sokol KWOY
Tom O'Hara W6ORG

Membership Services

Pat Mussig
Ralph Wilson WBOESF

Computers

Mike Finley KBOXL
Ron Tonneson K0QVF
Dick Kinney W8MBD
Bud Pitt WB0MEW
Jim Belletti
Claudia Jay - Typesetting
Clay Abrams K6AEP

Tom O'Hara W6ORG (FSTV)
Henry Ruh KB9FO (FSTV)
Gerald Cromer K4NHN (FSTV)
Hap Griffin WA4UMU (FSTV)
Don Miller W9NTP (FSTV/SSTV)
Gary Adams N9GA (FSTV)
John Beanland G3BVU/1 (Satellites)
Andrew Emmerson G8PTH (FSTV/SSTV)
Robert Suding W0LMD (SSTV)
George Steber WB9LVI (SSTV)

TECHNICAL EDITORS/ADVISORS

Clay Abrams K6AEP (SSTV)
Volker Wraase DL2RZ (SSTV/FAX)
Frank Wolczak WA0IWF (Video)
Mike Veldman WD0CTA (Video)
Howard Nurse W6LLO (Computers)
Dave Sargent K6KLO (Computers)
Gerald Gore WB5TXA (Fax)
Gerald Wilson WA6RDA (TVRO)
Don Fuller W2WHK (SSTV)
Bill Pasternak WA6ITF (Video)

Bruce Brown WA9GVK/4 (FSTV)
Dwight Raddatz WA9EUN (FSTV/SSTV)
Joe Elliot K0WVN (RTTY)
Jerome Grokowsky WA9HCZ (FAX)
Rual Alvarez WD4MRJ (FAX)
Fred Sharp W8ASF (SSTV/RTTY)
Ed Sullivan WB5MAP (Microwave)
Mel Dunbrack W1BHD (FSTV/FAX)
John Wilson VK3LM (SSTV)
and others...

These Members May Be Contacted Directly For Further Information, Send SASE

Nabeel Alhamer A9ZNH (Arabian Gulf)
John Bjornulf LA2BK (Norway)
Enric Bonada Dov EA3AYA (Spain)
Themos Cavvadas SV1LA (Greece)
Shirzad Chamkoori IJPC (Iran)
Luis Chartarisky XE1LCH (Mexico)
Bernard DeCaunes HB9AYX (Switzerland)
Nelson Dyett ZL2FR (New Zealand)
Andrew Emmerson G8PTH (England)

FOREIGN REPRESENTATIVES

John Ingham VK5KG (Australia)
Jim Kalassery VU2ARL (India)
Gerald Klatzko ZS6BTD (S. Africa)
Norrie MacDonald GM4BVU (Scotland)
Abe MacKay VE6AMU (Canada)
Piero Mescalchin I3XQW (Italy)
Christiane Michel F5SM (France)
Vic Noqueira CT1ARD (Portugal)

Salora Oya [Salo] (Finland)
Filipe Rojas HK3DJV (Columbia)
C.G.J. Sanders PA0DXY (Holland)
M. Shoval 4Z4PR (Israel)
Ricardo Silva PY6SB (Brazil)
Erik Sjolund SM0AGD (Sweden)
Kat Suhiko Kambara JG1DDT (Japan)
Diethelm Wunderlich DB1QZ (W. Germany)

RETAIL DEALERS/INTERNATIONAL EXCHANGES

Retail Dealers: Ham Radio World, Oneida County Airport, Terminal Building, Oriskany, New York; Universal Amateur Radio Inc., 1280 Aida Dr., Reynoldsburg, Oh.; ESF Copy Service, 4011 Clearview Dr., Cedar Falls, Ia.; Amateur Electronic Supply (AEA), 4828 West Fond Du Lac Ave., Milwaukee, Wisc.; Spectronics Electronics, 1009 Garfield, Oak Park, Ill.; Amateur Radio Equipment Company, 1203 East Douglas, Wichita Ks.; Henry Radio, 2050 S. Bundy Dr., Los Angeles, Calif.; Henry Radio, 931 N. Euclid, Anaheim, Calif.; Ham Radio Outlet, 2811 Telegraph Ave., Oakland, Calif.; Technical Book & Magazine Co., 289-299 Swanston St., Melbourne, Australia.
International Exchanges: USA - American Radio Relay League, Newington, Conn.; Amateur Satellite Corporation, Worldview FAX Newsletter, Tampa Fla.; Federal Communications Commission (FCC), Washington, D.C.; RTTY Journal, Cardiff-by-the-Sea, Calif.; International Visual Communications

Association, Dallas, Tx.; Magazines; QST, 73 HR, CO, World Radio, Computer Trader, Nuts and Bolts, Broadcast Engineering, Satellite TVRO Digest., 6800 Micro Journal, Popular Communications, Radio Communications, Rainbow, Today, Hot Colo, 80 Micro-Computing, Color Computers News, Monitoring Times; **ENGLAND** - British Amateur Television Club (BATIC), Radio Society of Great Britain (RSGB); **FRANCE** - Essem Revue (SM Electronics, Clarlons); Association of French Amateurs for Long Distance Television, LaTresne; **JAPAN** - Japan Amateur Radio League (JARL), Japan CQJA and CQ Ham Radio; **GERMANY** - TV Amateur (DARC) (AGAF) Frickenberg, German Amateur Radiotelepointer Group; **CANADA** - Ontario Amateur Radio Society, Kitchener, Canada; **AMERICAN** - Pan American Journal, Spain & South America (New York); **AUSTRALIA** - South Australia ATV Group, Sefton Park.

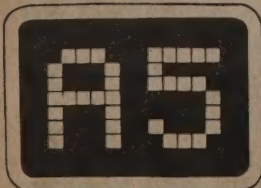
MEMBERSHIP SERVICES

The A5/USATVS provides a large membership services department for membership training aides, educational material, back issue reprints and other information exchanges. Books and other printed material, videotape selections and discount retail commercial buying service are also included under membership services.

*Back issues or "A5" are available from ESF Copy Service (see ad.)

A5/USATVS Membership Services

P.O. Box H,
Lowden, Iowa 52255



DEVOTED TO HAM TV



1984 "A5/USATVS" NATIONAL ATV CONFERENCE TO BE HELD SEPTEMBER 21-23, IN CONJUNCTION WITH "RADIO EXPO 84" (Chicago FM Club)!

**"Reservations
Now Being
Accepted!"**

made prior to September 1st. Regular Rates are \$55.00 for single, \$59.40 for double occupancy. Specially obtained ATV Conference rates for those with reservations by September 1st are \$42.00 (plus 10% tax \$4.20 = \$46.20) for a room that sleeps four (2 to a bed). Call Jim or Jeanette Eckley at (312) 843-8484.

Program Line-up

A very interesting and informative program lineup is currently being assembled and finalized. Official ATV Conference programs will not begin until 1 pm. so to allow time for those who want to go to RADIO EXPO 84's Saturday morning activities and additionally for those driving into the Chicago area from long distances. Basic introduction lectures will be conducted in the early afternoon with a break for tours followed by a serious afternoon informal ATV theory lesson. The evening program begins promptly at 6 pm. and will continue until approximately 9 pm. followed by Part 2 of the humorous A5 TV Bloopers for those that wish to stay. Transportation will be provided for those that want to attend RADIO EXPO 84 on Sunday morning.

Two for the price of one...

This year marks the 14th year for the RADIO EXPO 84 HAMFEST drawing over 5,000 Amateurs in the suburban Chicago location site with a large number of Commercial exhibitors as well. The CHICAGO FM CLUB, INC. sponsors 4 very popular VHF/UHF Repeaters, the most used being the 146.16/.76 2-Meter FM Repeater, a 220 FM Repeater (with autopatch) and a 440 FM Repeater (PLL but open) system (ATV'ers talk-in frequency is 144.340 Mhz. FM). The Club caters to SPECIALIZED COMMUNICATIONS modes such as ATV, SSTV, RTTY, OSCAR and the use of COMPUTERS. Our contact with the CHICAGO FM CLUB is Mike Brost WA9FTS of Norridge, Illinois. Further flyer information is available with PRE-REGISTRATION for the A5/USATVS NAT'L ATV CONFERENCE. Our ATV Conference Chairman is Dwight Raddatz WA9EUN of Woodridge, Illinois.

Conference Headquarters

This years ATV CONFERENCE headquarters and meeting site will be held at the LA QUINTA MOTOR INN, 1730 East Higgins Road, Schaumburg, Illinois (60195) which is 30 minutes south of the RADIO EXPO 84 HAMFEST Fair Grounds, approximately 30 miles northwest of downtown Chicago and about 10 miles NW from Chicago's O'hare Field. Those of you who will be flying in on Commercial services will have HOTEL to and from delivery service available at the airport. Shuttle transportation to and from RADIO EXPO 84 will be coordinated at the Saturday ATV Conference. HOTEL RESERVATIONS with the LA QUINTA in Schaumburg should be

Send in your Pre-Registration!

Anyone who has attended past year "A5" ATV CONFERENCES know the "quality" and "fun" held in these meetings. Many guest speakers are brought in from around the country for technical lectures along with "live" and videotaped FSTV/SSTV/FAX demonstrations. As in previous Conferences, the entire ATV session will be videotaped and included in the A5/USATVS Library. Two "special" Saturday afternoon TOURS are scheduled in addition to the ATV Conference agenda; a guided TOUR of the JOHN HANCOCK building (rooftop levels) with Henry Ruh KB9FO (former A5 Publisher) with attention to Communications equipment and antennas (unavailable to the general public) and a TOUR/VISIT to the famous "Super Station" WGN-TV Channel 9 arranged by station employee and Amateur Tom Mikkelsen (formerly of Channel 8 WQAD-TV (ABC Moline). Also, if there is enough interest-a Saturday morning "SHOPPING SPREE" with travel to and from one of CHICAGO'S BIGGEST MALLS-WOODFIELD (will be provided for those XYLS who like to counter the QM's spending budget! If you are interested in the TOURS and/or SHOPPING SPREE offers, please let us know by mail with your PRE-REGISTRATION. Checks may be post-dated and will not be cashed until a couple weeks before conference dates. Since there is no planned dinner banquet for this year's meeting, a conference charge of just \$10.00 is required which includes an open bar on Saturday evening. There is no charge for XYL's or family members. Watch for further details in the September issue of "A5". Please make your plans to attend!

CHANNEL 2



ILL/WISC/LAKE MICHIGAN MAP

Tickets to RADIO EXPO 84 will be available during the A5 ATV Conference for purchase.

Some Commercial Booths are still available. Contact Mike Brost WA9FTS.



2-Day ATV Conference Session Tickets \$10 per person (no charge for non-ham XYL's family).

"Nearing 18 Years of Service To Amateur Operations since 1967!"



1984 A5/USATVS FALL ATV CONFERENCE

TENTATIVE SCHEDULE OF EVENTS

FRIDAY, SEPTEMBER 21, La Quinta Motor Inn (Schaumburg, Illinois)

- 6:00 pm Conference display area and registration open-Room A
- 7:00 pm Conference Agenda and Introductions
- 7:30 pm Statewide ATV Videotape Replays/Group General Discussion (Live ATV Demos!)
- 9:30 pm "A5" TV Bloopers (Adult) -Room B

SATURDAY, SEPTEMBER 22, La Quinta Motor Inn Area

- 7:30 am ATV DX'ers-Breakfast (Denny's Restaurant)
- 8:30 am Shuttle Transportation to RADIO EXPO 84 Departs
- 9:00 am Conference-Display Area and Registration Open-Room A
- 10:00 am Shuttle Transportation to WOODFIELD MALL Area Departs
- 10:30 am Having Fun With Amateur Television (Videotape Presentation)
- 12:00 pm Return Shuttle from EXPO to La Quinta
- 12:30 pm Lunch Break
- 1:00 pm Conference Agenda, Announcements
- 1:30 pm Introduction to ATV (W6DRG Videotape Presentation)
- 2:00 pm Amateur Radio Visual Communications (Past, Present, Future) -Henry Ruh KB9FO (Indiana)
- 2:45 pm Tours for Hancock and WGN-TV Studio Depart
- 3:00 pm FSTV Theory Workshop Session -John Beanland G3BJU/1 (Spectrum International-Mass.)
- 5:00 pm Dinner Break
- 6:30 pm Evening Session Kickoff, Agenda, Announcements, Introductions & NA Contest Results.
- 7:00 pm Progression of Slow-Scan Television (SSTV) and Amateur Facsimile (FAX) Communications. Demonstration of ROBOT 458C and WRAASE SC-1 and other gear by Dwight Raddatz WA9EUN (Illinois).
- 8:00 pm Motion SSTV (Videotape presentation by Tom Hibben KB8MC (Wisconsin).
- 8:30 pm Raffle Drawings/Award Presentations
- 9:00 pm FSTV DX'ing Techniques (UHF Antenna Testing Results)
- 9:30 pm The Use of High Powered Linears on FSTV -Bill Bryant K9KKL (Illinois)
- 10:00 pm The Future of FSTV Communications (We Must Protect Our Frequencies!)
- 10:30 pm Conference Closed (Live ATV Demos)
- 10:45 pm "A5" TV Bloopers (Adult) -Room B

SUNDAY, SEPTEMBER 23rd, 1984

- 8:30 am Shuttle Transportation to RADIO EXPO 84 Departs
- 12:00 pm Shuttle Transportation to La Quinta and Chicago's O'hare Field Airport Departs from RADIO EXPO 84.
- 4:00 pm RADIO EXPO 84 Ends



**Wake Up To
La Quinta**
800-531-5900

on
9 PM

1984 A5/USATVS FALL ATV CONFERENCE PRE-REGISTRATION FORM

Yes, I will be attending the Fall ATV Conference! ☐
 I am also interested in: John Hancock Building Tour ☐
 WGN-TV9 Station Tour ☐
 Northwoods Mall Shopping Spree ☐

I will ☐ will not ☐ require local shuttle transportation.
 I, have made ☐ will need reservations
 Enclosed is my \$10.00 Pre-Payment

Name _____ Call Sign _____ No. Party _____

Address _____ City _____ Zip _____

Phone Number (Area Code) _____

SEND TO: A5/USATVS "MEMBERSHIP SERVICES DEPT."

C/O Conference Coordinator

P.O. Box H

LOWDEN, IOWA 52255-0408



**Catching the "A5" Editor and
Putting him "In-the-tube", WBOQCD
Comments on some unpublished questions...**

As the months pass by, we acquire a number of "Letters to the Editor" that never get published simply because of lack of room. We have assembled a number of the most often asked questions to Mike Stone (Editor/Publisher) with corresponding answers. We encourage your letters and opinions. Send to "letters to the Editor", P.O. Box H, Lowden, Iowa 52255.

Q-"WHY ISN'T THE USATVS MORE FORMALLY STRUCTURED & ORGANIZED LIKE THE ARRL OR OTHER ORGANIZATIONS?" A-A lot of forethought went into the initial formation of the USATVS in the late summer/early fall of 1982. The choice was between creating a very officially "looking" organization (on-paper) that in reality could accomplish very little due to the vast travel distances required by a majority of members against a rather informal Society sponsored by a well established-longtime publication that has been devoted to the advancement and promotion of the Ham-TV modes for many years. The key to success on the latter choice being in publishing Membership ideas and feelings on a regular basis. It has been interesting over the past year and a half to see the results (or should we say-the lack of) of another similar organization (made up of mainly SSTV'ers) that decided to take on the "paperwork impressive" type of organization. This organization has all but officially collapsed with the leadership responsibilities being passed around like a "cracker-jack box" and with very ill feelings of financial problems among some members. It has reassured us that we did indeed take the better of two roads. On the future side, as we near two years of official formation (18 years unofficial)-we are considering establishing regional area representatives similar to the structure of the ARRL for even a more enhanced voice by area Ham-TV'ers. We are open to any ideas!

Q-"WHY DID A5 CHANGE THE LONGTIME ESTABLISHED FORMAT OF NEAR FSTV TOTAL COVERAGE?" A-When I took over A5 from Henry Ruh in July 1981, I was faced after a few issues, with the hard decision of #1-going monthly and #2-expanding coverage of other specialized communication modes other than ATV. If I were to try to have the fun of creating a regularly monthly publication, the decision had to be based on advertiser and membership article support. Looking back, I think we made a good decision-lost very few subscribers-and gained a lot more flexibility both in timeliness of article information and advertising offerings. The decision to cover a more broad range of Amateur specialized communication modes was twofold. Obviously, more appeal in sales to more Radio hobbyists overall and in today's modern electronic communications-there are more additional modes using "video visual communications" than just FSTV. The bottom line was if A5 ATV MAGAZINE was to survive a monthly publication

agenda-where FSTV coverage would never support it completely. We always emphasize, however, that half or more of each USATVS Journal shall be set aside exclusively, to Fast Scan TV applications.

Q-"WHY DO YOU ALWAYS SEEM TO BE DOWN SO MUCH ALL THE TIME ON SSTV'ERS IN GENERAL?" A-Good controversial question! Without opening up old wounds, most SSTV'ers have seemed to be led astray by some pretty greedy individuals. These few misguided individuals have been the ruin of SSTV "friendly" activity as it was known for many years since Copthorne MacDonald first started sending the still-frame pictures in the mid 1960's. The latest casualty to become disgusted with today's SSTV tactics is the loss of Clay Abrams K6AEP in the Computer/SSTV field. Those who pirated and re-sold his popular (and inexpensive) SSTV/RTTY software, are now making everyone pay the price of the loss of this genuinely creative genius. We are even seeing the resurfacing of one individual who always claims a doctorate degree and not that many years ago created all kinds of hostility amongst SSTV'ers with false claims of product production and outright thievery in financial misrepresentations. After a few years of quiet silence and over 20 changes of address, this individual has once again surfaced with the apparent partnership of another popular SSTV leader that will only lead to further problems for the unsuspecting new SSTV'ers. Problems? SSTV has them-we all hope that time will cure all. Meanwhile we shall continue to voice our opinions when we feel it is necessary. After all, that is what democracy is all about, isn't it?

Q-"A5 IS ALWAYS PUBLISHED IN POOR QUALITY WHEN COMPARED TO OTHER AMATEUR MAGAZINES. WHY?" A-Numbers. Give us 10,000-25,000 or 150,000 subscribers (like QST) and we will gladly give you nice shiny white glossy paper and color cover and advertising that will knock your socks off! Working with around 2,000 subscribers (and retail distribution sales), we are fortunate to use a good grade of newsprint. Paper cost is tremendous. Even Uncle Sam has announced once again that 2nd Class U.S. Postage rates are going up once again sometime this fall. Simply put, we are providing the best possible looking and attractive publication possible to stay within a profitable budget. Ham-TV'ers will always be a relatively small group of specialized communicators out of nearly 500,000 "hams" worldwide. Fortunately, "quality" usually does not exist in the mass of numbers, but of a few. We are after those "few"!

Q-"IN EACH ISSUE OF A5, THERE ARE A NUMBER OF SPELLING ERRORS THAT ALWAYS SEEM TO OCCUR, HOW COME?" A-Wayne Green always says at one time or another in many of his famous lectures; "I put in 7 errors in each issue and challenge you to find them!". Not that we believe in the U6 theory entirely, we try our best and yes we do have a couple dictionaries* (I just had to look that word up!) around the computer just in case. Also, some errors occur (and are corrected) during the translating the authors original transcripts in articles as well as when they are typeset by our printer. In a conscious effort to lower these

unforgiveable occurrences, we have employed two USATVS members to aid us in just such situations. Unfortunately, N7AON gets his issues about 3 weeks after the rest of nation and his comments are only taken in memory storage for future issues. Our other "educational genuis" seems to have trouble finding his way to work each day if they move any of the road signs around (K4NNN). Thanks for the questeun...

Q-"I ONLY HAVE A LIMITED AMOUNT OF MONEY TO GET INTO ONE PARTICULAR MODE OF SPECIALIZED COMMUNICATIONS. WHICH MODE WOULD YOU RECOMMEND TO GET INTO IF YOU HAD TO CHOOSE ONLY ONE?" A-Wow, always a hard question to answer. It depends largely your areas activity interests. Scout the local VHF/UHF bands for several months for some sign of activity. Ask around and attend as many local Club meetings that you can out find about. 2 Meter FM Repeaters are a good source of information usually. In short, Satellites are tricky and expensive, SSTV is just plain expensive for good up-to-date equipment, FSTV (if you have others interested in your area-or can find some) is relatively inexpensive and loads of fun, FAX can also be cheap to get into-but limited to actual applications. Have you talked to your banker about a loan?

Q-"I ORDERED SOME VIDEOTAPE PROGRAM MATERIAL VIA THE USATVS MEMBERSHIP SERVICE DEPT. & IT TOOK A LONG TIME TO GET MY ORDER. HOW COME?" A-There can be no excuses for breach of promise. We apologize for the long delays on some videotape material. The Dayton Hamvention, production efforts on our recent HAMFEST! (C) 1984 Game and obligations on building up a local Cable-TV channel thru us way off course for awhile. We now own two 3/4 inch professional VCR decks (one SONY player only and one PANASONIC NV-9200 recorder), one Sylvania VHS deck, one SANYO Beta deck and a host of other video recording gadgets. The problem always exists on orders for VHS programs. We always have to "borrow" another VHS recorder to complete the duplication process. Usually once or twice a month, we can obtain such a loan for a few days and get caught up. The other big problem is that of time. The M132 STS-9 Space Shuttle program tape for example has turned out to be one of the most popular ordered. It takes 4.5 hours to complete one program. Most of our Lecture and/or Meeting tapes are 6 hours in length. You don't get too many duplicated per day at that kind of individual time rate in addition to other obligations. Okay, enough excuses, we will try to be more prompt. We anticipate an average of 3-4 week return period.

ARE YOU LOOKING FOR BACK ISSUES? CAN'T FIND THAT OLD ARTICLE? LET US HELP YOU!

We specialize in carrying or reproducing out-of-print back issues of amateur publications. We stock full collections of the RTTY Journal and A5 ATV Magazine. We can do customized duplicating jobs at less cost then copy centers. Send your request to us today. You'll get a quick reply!

Beginners Series Guide Booklets (A5 Reprints)			
*RTTY Journal Reprints	\$1.00	FSTV	102 \$5.00
*A5 Magazine Reprints		SSTV	103 5.00
Vol. 1-4 (small)	1.50	RTTY	104 5.00
Vol. 5-11 (Large)	2.00	FAX	105 5.00
Vol. 12-Present	2.00	Computers	106 5.00
*A5 P-Charts	1.00	TVRO	107 5.00
*A5 Test Patterns	1.00	TRS80C	108 5.00
*A5 Hamfest Games	14.95	RFI	109 5.00
*QCD Catalogs	1.00	ROBOT 400	110 5.00
*ATV Nutshell Reprint	5.00	Master Guide	111 10.00
*Complete Journal	150.00	A5 Index	112 2.00

All printed items add .75 postage.
Iowa residents must add 4% sales tax.

ESF COPY SERVICES

4011 Clearview Drive
Cedar Falls, Iowa 50613
(Allow 2-3 weeks delivery)

**PLAN NOW
TO ATTEND
THE FALL 1984
"A5/USATVS"
CONFERENCE.
BRING ALONG
YOUR ATV EDITED
DOWN VIDEOTAPE!**



YES, WE HAVE IT!

TWO 5' x 1/2" ROLLS FOR \$5.95 ppd. **OR:**
FOUR 12' x 1/2" ROLLS FOR \$13.95 ppd.

Send payment with order
OR, call for faster service
(have charge card
number ready).

BIRCH HILL SALES
P.O. Box 234
Peterborough, NH 03458
(603) 924-7959

**"DO YOU HAVE SOMETHING THAT WOULD
BE OF INTEREST TO OTHER A5/USATVS MEMBERS?
SHARE IT WITH AN ARTICLE IN A5 ATV MAGAZINE!"**

A5

**SERVING AMATEUR RADIO-TV ENTHUSIASTS WORLDWIDE
FOR OVER 17 YEARS!**

A TIME-MULTIPLEXED TWO TIMES VERTICAL FREQUENCY STEREOSCOPIC VIDEO SYSTEM!

A5/USATVS MEMBER CO-INVENTS POSSIBLE FUTURE TV TREND

by Lenny Lipton and Lhary Meyer (KE6KB)

Sterographics Corporation, San Rafael, California

(StereoDimensional™ True Stereoscopic 3-D)

Introduction

A time-multiplexed stereoscopic video system has been developed which is flickerless and compatible with the NTSC protocol. Left and right fields are presented at twice the usual vertical frequency. Individual selection devices are employed for observing the display.

The StereoDimensional™ brand stereoscopic video system, is based upon switching techniques for displaying sequentially presented right and left perspective viewpoints. The description given here is stated in terms of the NTSC protocol, but may just as well be given for other protocols of colorplexing, field rate, lines per field, or band width, and for both broadcast or non-broadcast applications, without loss of generality.

Design goals

Our engineering criteria in designing the present system included the mandate to provide a flickerless stereoscopic video display, with properly interlaced fields, and including an electronic technique to prevent unwanted pseudoscopic display of the images. We hoped to provide a stereoscopic television receiver or monitor similar to current apparatus with regard to substantial portions of existing electronic circuits and display tubes.

We hoped to create a stereoscopic television system highly compatible with the existing commercial television broadcast infrastructure for through-the-air or cable transmission. Such a technology, we felt, would be useful for closed-circuit camera applications such as industrial training, corporate communications and exhibitions, robotics, microscopy, surveillance, handling materials from a distance in undersea, outer space, or hazardous environments, aerial photogrammetry, and also for stereoscopic computer-generated images in fields as diverse as CAD/CAM/CAE, molecular biology, and medical imaging.

Comparison of prior and new technology

In the prior technique, put into practice by Megatek, Panasonic (Matsushita), and Honeywell, video fields are alternately encoded with right or left information, resulting in a reduction of fields reaching each eye. This results in undesirable flicker because there are now only 30 fields per second per eye, a rate which is well below the critical fusion frequency.

Another concern we had with regard to the prior technology was the lack of proper interlace for images presented to each eye. Since the odd fields have one perspective viewpoint, and the even fields the other, the

picture presented to each eye will not have the usual twofold interlace. Each eye sees only half the lines, either the odd half or the even half, exclusively, as shown in Figure 1.

In the StereoDimensional video system, the number of fields per second is doubled. We achieve this by doubling the vertical scanning rate, thereby producing 120 fields (or, in our nomenclature, subfields) instead of 60 fields per second. Thus, the number of fields is doubled while the number of lines per field is halved, but, as we shall explain, each eye sees a proper twofold interlaced image.

When displayed on a usual 60Hz receiver or monitor, each image will appear to be anamorphically compressed in the vertical direction by a factor of two, as shown in Figure 2. Two such images, the left and right subfields, above and below, will be seen on the unmodified monitor. A vertical sync pulse signal is added to a blanking interval between the two subfields for a proper display on a 120 Hz monitor. The reader will note that the description given above and to follow could just as well be given in terms of an upper right image and a lower left image.

In order to produce the needed left-right-left-right sequence of subfields for one stereoscopic frame within one thirtieth of a second, for a properly interlaced, flickerless image, cameras need to be modified for a field rate higher than the usual 60Hz, or for 120Hz.

When displayed on a suitably prepared 120Hz monitor, the two images are displayed in sequence. The monitor must also have the vertical controlling picture circuit adjusted to double deflection, i.e., double vertical sync frequency, in order to display an image of proper proportions.

Interlace considerations

The StereoDimensional stereoscopic video system takes a normal television field of 262.5 lines and turns it into two subfields, the left above and the right below (as observed on a 60Hz monitor), each having 131.25 lines. When played back on a 120Hz monitor, 120 fields per second are displayed, each field having 131.25 lines. Accordingly, when viewing the image through the appropriate selection device, each eye sees 60 fields per second.

Figure 3 shows four successive subfields which make up a stereoscopic frame. Subfields L_1 , R_1 , L_2 , R_2 contain 131.25 lines each, as shown in what are essentially timing diagrams, with time in the vertical axis. We note that blanking intervals are represented here by dotted lines.

Four subfields make up one stereoscopic frame and are presented in one thirtieth of a second, or in the time that two 60Hz fields are presented. Accordingly, L_1, R_1, L_2, R_2 make up one stereoscopic frame. L_1 and L_2 form a twofold interlaced pair of fields, and R_1 and R_2 form a twofold interlaced pair, when displayed on a 120Hz monitor.

As is well known, the odd number of lines per frame produces a twofold interlace; thus, each field contains 262.5 lines. Half a scanned line written at the bottom of one field starts the next scan line for the next field at the midpoint of the first horizontal line.

Thus, subfields with a quarter line "leftover" will produce a 4:1 interlace. Alternate similar "eyed" subfields, as L_1 and L_2 , for example, will have a 2:1 interlace. For this reason the fields are presented L_1, R_1, L_2, R_2 , and not L_1, L_2, R_1, R_2 . If L_1 and L_2 followed each other directly, these subfields would not be properly interlaced. As has been mentioned, prior systems encoded left and right images on odd and even fields. Thus, neither eye's image was interlaced. The present system does not have this defect.

Camera and transmission

In Figure 4, we see left and right portions of a stereoscopic camera. Each subfield of 131.25 lines is switched alternately by the control electronics and is displayed on the monitor's display screen. The fields are meant to be viewed through appropriate selection devices--in this case electro-optical shutters occluding the images in synchronization with the subfield rate. The observer will view a flickerless stereoscopic image through the glasses.

When observed on a 60Hz monitor display screen, the image will appear as shown in Figure 2, with an image compressed by a factor of two in the vertical direction. The vertical blanking area added between the subfields is of the same duration as the NTSC 60Hz blanking area.

The left and right images are rapidly alternated. The images in these subfields are presented in sequence at such a high rate that, when viewed without the aid of the selection device, the images appear to be superimposed. Since the number of fields per second is above the critical fusion frequency, flicker is not present. Left and right cameras which are modified to run at 120Hz will, in conjunction with the appropriate switching electronics, produce the NTSC StereoDimensional format of 131.25-line subfields.

In addition, because the left image always follows an original sync pulse, the shuttering elements are always synchronized without reference to odd/even field information. As a result of this, pseudoscopic images do not occur unless deliberately created.

Note that the bandwidth requirements remain the same for our system as for the television system commercially employed. No

increase in bandwidth is needed for the sequentially presented left/right image pairs in the StereoDimensional stereoscopic video format. Thus, transmission of such a signal by closed circuit, through-the-air broadcast, or via cable may also be achieved. Moreover, the existing video tape and video disc formats are also capable of recording and playing back such signals without any modification.

Selection devices

Stereoscopic imaging systems which present left and right perspective views in sequence have used the occlusion technique for image/selection. The basic technique was proposed in the mid 1850's and actually put into practice for motion pictures in the early 1920's for Hammond's Televue system. For this method, which is conceptually identical to that which has been used for a number of stereoscopic television systems, mechanical shutters are employed which alternately occlude and transmit the left or right image for the appropriate eye.

The advent of solid state electro-optical shutters, and the elegance inherent therein, has rekindled interest in field sequential video systems in the last decade. The material which has been used is PLZT ceramic, which is a variable birefringent material; when properly energized with an electric field, the PLZT ceramic becomes a half-wave plate. If used in conjunction with an appropriate sandwich of sheet polarizers, as shown in Figure 5, the result is a shutter.

The goggles used in the first generation StereoDimensional system have been PLZT ceramic material. For operation, this material requires approximately 250 volts. Despite the high voltage the product is safe because the circuit is current limited. The PLZT element is acting essentially as a capacitor.

A variation on the occlusion method for image selection is sometimes termed on-screen switching. A variable birefringent plate is used in conjunction with a single linear polarizer as shown in Figure 6. Light from the CRT passes through the linear polarizer and then through, for example, an LCD plate. The axis of polarization of display light is switched at field rate, as the LCD material switches from optically inactive to a retarder. The switched axes are orthogonal. We have actually demonstrated such a system in the laboratory with small screen CRT's and the process is entirely satisfactory.

Acknowledgements

The authors would like to acknowledge the initial interlace design done on the StereoDimensional system, by James Stewart. Some optical system suggestions were made by Michael Starks. We would also like to thank David Lee of Stereographics Corporation for design work which has lead to a marketable product.

References

1. Bonne, V. Stereoscopic Display System, U.S. Pat. #3,858,001, 1974.
2. Dockhorn, W.A., Stereoscopic Apparatus, U.S. Pat. #2,810,318, 1957.
3. Hammond, L. Stereoscopic Motion Picture, U.S. Pat. #1,435,520, Nov. 1922.
4. Helmholtz, H. Von. Helmholtz's Treatise on Physiological Optics. Volume III, 3rd Edition. Optical Society of America. Menasha, Wisconsin, 1925.
5. Lipton, L. Foundations of the Stereoscopic Cinema, Van Nostrand Reinhold, New York, 1982.
6. Okoshi, T., Three-Dimensional Imaging Techniques, Academic Press, New York, 1976.
7. Reese, John A., Liquid Crystal Stereoscopic Television System, U.S. Patent #3,821,466. 1974.

Figure 1.

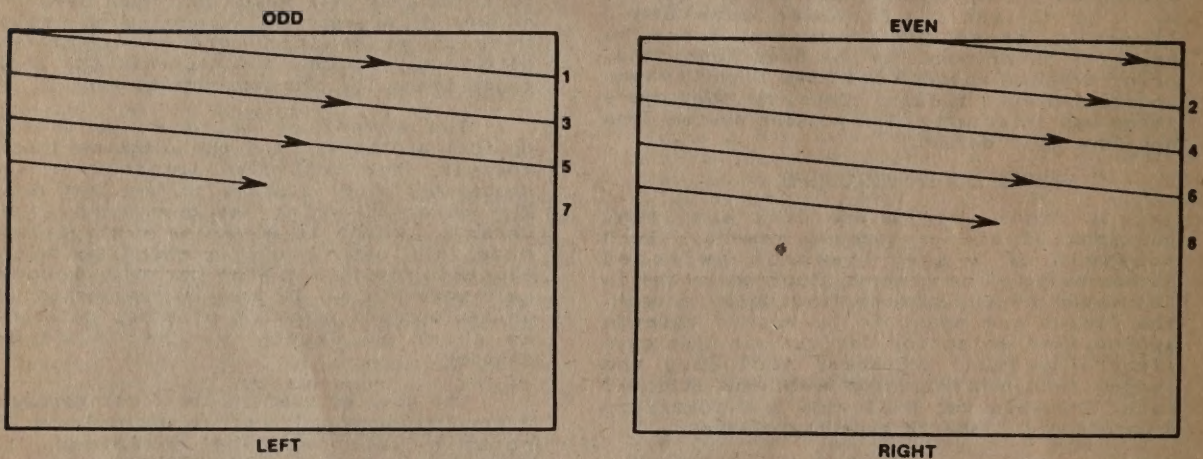


Figure 1. Lack of proper interlace results when alternate fields of 60Hz systems are used for left-right viewpoints.

Figure 2.

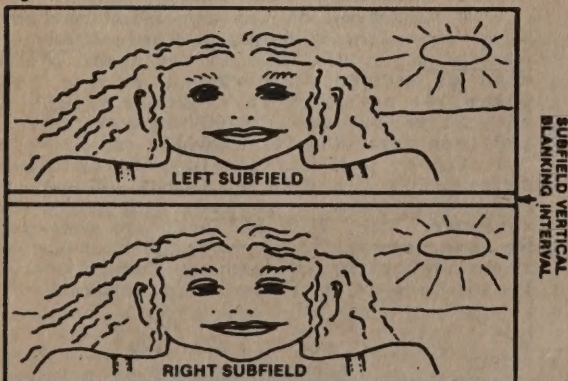


Figure 2. The present video format, when displayed on a 60Hz monitor, shows left and right subfields, above and below each other, separated by a vertical blanking interval, with images anamorphically compressed by a factor of two.

Figure 4.

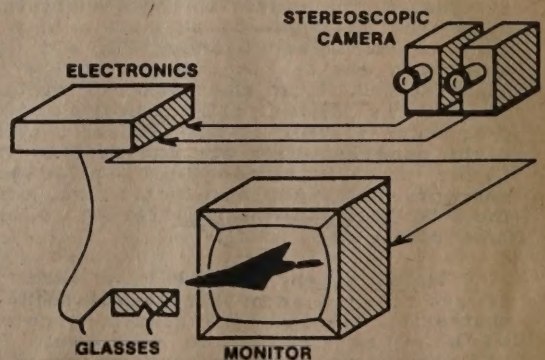


Figure 4. A typical configuration of the stereoscopic video camera system.

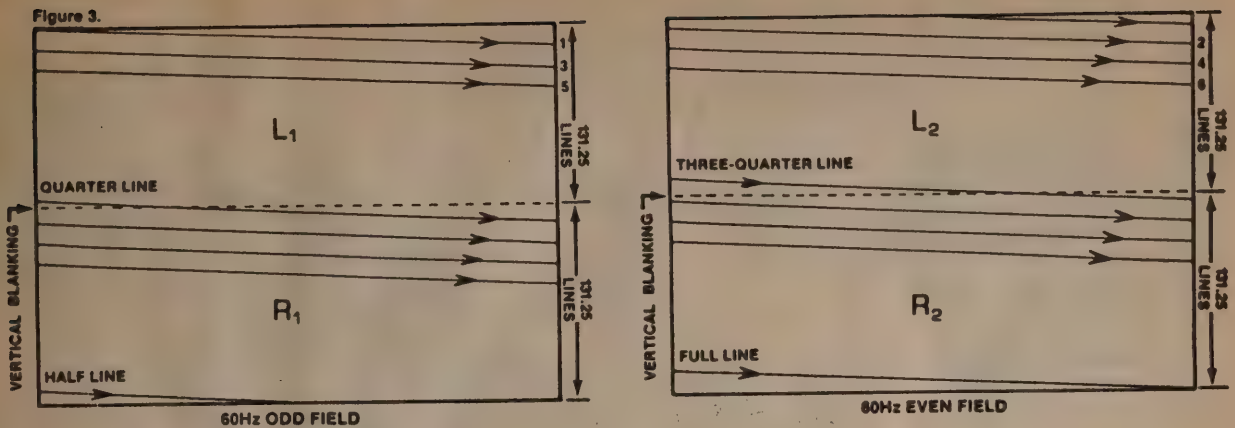


Figure 3. Four successive subfields which make up a stereoscopic frame. Blanking intervals are represented here by dotted lines.

Figure 5.

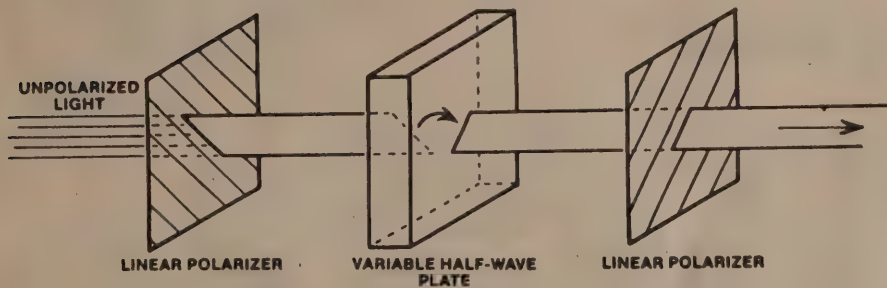


Figure 5. When energized with an electric field, the variable birefringent material becomes a half-wave plate. In conjunction with a sandwich of sheet polarizers, it acts as a shutter.

*A5 Note: Larry Meyer KE6KB
may be contacted directly at
P.O. Box 2309
San Rafael, California 94912
(415) 459-4500

Figure 6.

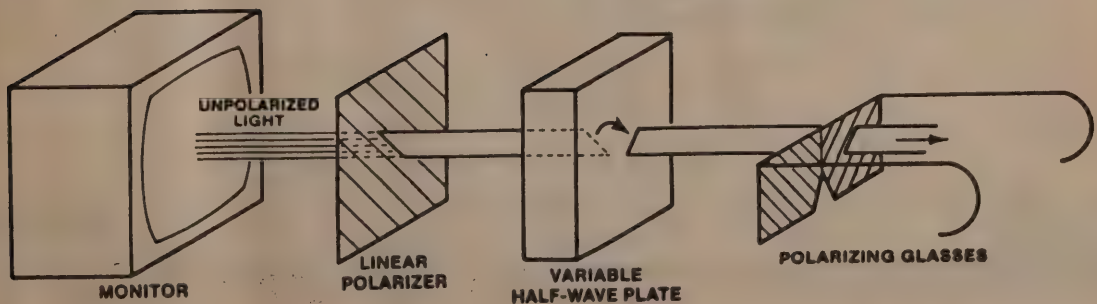


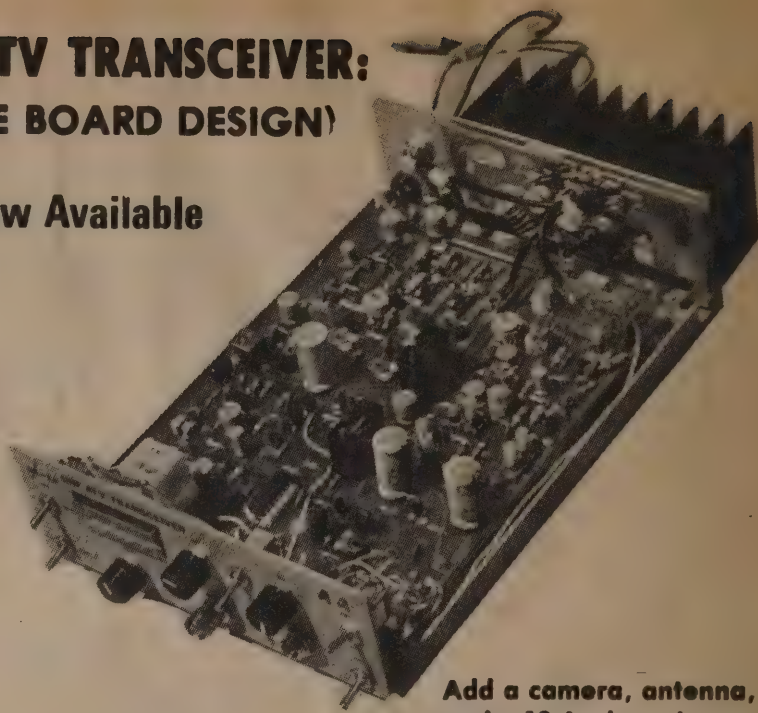
Figure 6. In on-screen switching, a variable birefringent plate is used in conjunction with a single linear polarizer. Light from the CRT passes through the linear polarizer and then through the LCD plate. The axis of polarization of CRT light is switched at field rate as the LCD material switches from optically inactive to a retarder state.

SE-1a UHF ATV TRANSCEIVER:

(NEW ONE BOARD DESIGN)



Now Available



STILL ONLY \$399.95 + \$4.50 UPS

★ 2 FREQ. ADD \$25.00

STANDARD FEATURES

- SA-1 SYNC AMP FOR SOLID STATE LINEAR AMPLIFIER USE.
- 2 RF STAGE DC-1 CONVERTOR WITH LOW NOISE BFQ-74 FIRST STAGE.
- BOTH FM ON-CARRIER AND 4.5 MHZ SUB-CARRIER AUDIO SELECTABLE!
- RECEIVER TUNES FROM 418 MHZ THRU 455 MHZ — OUTPUTS TO TV CH. 2, 3 or 4.
- STABLE CRYSTAL CONTROLLED TRANSMIT — 439.25 MHZ STANDARD — OTHERS AVAILABLE.
- DURABLE STRIPLINE LINEAR AMP FINAL WITH BANDWIDTH FOR COLOR AND 4.5 MHZ SOUND.
- AVERAGE POWER OUTPUT IS 6 - 9 WATTS DEPENDING ON VIDEO CONTENT.
- SOLID STATE TRANSMIT / RECEIVE SWITCHING.
- BUILT-IN VIDEO / AUDIO MONITORING OF TRANSMITTED SIGNAL.
- ILLUMINATED PANEL METER FOR TRANSMIT AMP CURRENT AND RELATIVE RECEIVE FREQUENCY TUNING.
- RECEIVE RF GAIN CONTROL.
- CUSTOM MADE ALUMINUM ENCLOSURE WITH EPOXY FINISH.
- 13.6 VDC OPERATION FOR MOBILE / PORTABLE OPERATION.
- 10.8" x 6.2" x 2.5"

Add a camera, antenna, mic, 13.6 vdc and a TV set for a complete fast scan ATV station.

Plus — Provision For Future Internal On-Carrier Audio Receive Module Included.

**FSTV AND SSTV PRODUCTS
AVAILABLE FROM:**

INDIANA Residents Add 5% Tax.

WYMAN RESEARCH INC. *

RR #1 Box 95

Waldron, Indiana 46182

**Business Hours (317)525-6452
8 a.m. to 12 EST**

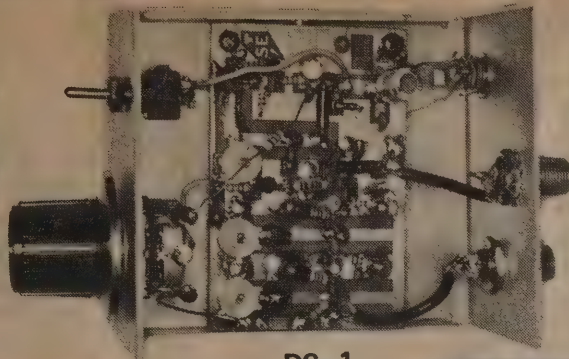


*WYMAN RESEARCH WILL SOON BE BRINGING OUT A LINE OF SLOW SCAN TELEVISION EQUIPMENT. THESE DEVELOPMENTS WILL INCLUDE COLOR BOARDS FOR PRESENTLY AVAILABLE HIGH RESOLUTION DIGITAL SCAN CONVERTERS, MEDIUM SCAN OPTIONS, AND EQUIPMENT UTILIZING THE NEW NTSC BURIED CARRIER METHOD OF TRANSMITTING COLOR SSTV WITH ONLY ONE MEMORY. SEND US YOUR NAME AND ADDRESS IF YOU WOULD LIKE TO KEEP UP ON THESE DEVELOPMENTS!

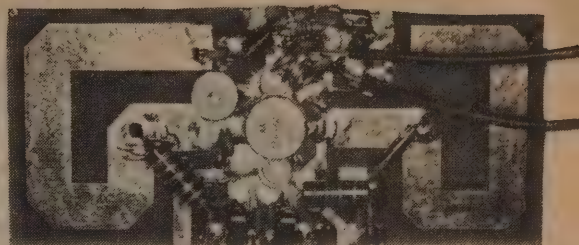
ATV KITS AND MODULES



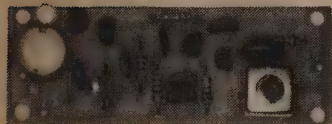
SA-1



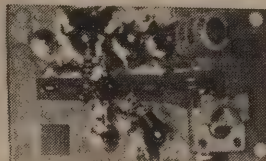
DC-1



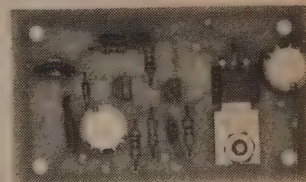
LA-1



A-2



P-1



VM-2

VM-2 VIDEO MODULATOR — Wideband collector video modulator for solid state exciters such as those from GLB and Hamtronics. Input for 4.5 MHZ audio sub-carrier. 2½" x 1½"; **\$15.50** kit, **\$19.95** assembled.

A-2 4.5 MHZ AUDIO SUB-CARRIER — Accepts audio from VCR or GLB audio processor to provide ATV audio on TV set. Has on-board voltage regulator and shielded inductor. 2¾" x 1"; **\$19.95** kit, **\$25.95** assembled.

SA-1 VIDEO SYNC AMP — Provides separate video sync gain control for VM-2 above or SE - 1a transceiver. Useful when driving solid state amps. 1¾" x 1¼"; **\$15.95** assembled, **\$12.95** kit.

DC-1 UHF CONVERTOR — Varactor tuned with 2 RF stages. BFO-74 input standard. Double sided stripline design. Outputs to TV ch. 2, 3, or 4. Can be tower mounted. 11 — 14 vdc. 2" x 3"; **\$39.95** kit, **\$54.95** assembled, **\$89.95** complete in box. **Box kit \$30, includes all hardware for the DC-1.**

P-1 WIDEBAND LOW NOISE UHF PREAMP — Uses BFO-74 transistor for min. 18 db gain and 0.6 db noise figure. Covers 420—450 MHZ band. Other frequencies received with change in input inductor. 2¼" x 1 3/8"; **\$22.95** kit, **\$31.95** assembled.

LA-1 UHF AMPLIFIER — Uses 15 watt MRF641 transistor with 7.8 db gain @ 470 MHZ. Stripline inductors with on-board pin diode antenna switching for a receiver. Designed for wideband color video with exciters such as the GLB T450L that provides up to 3 watts drive. Drilled and tapped heatsink included (4½" x 1¾"). 1 to 3 watts drive typically gives 6 to 18 watts output. 12 — 14 vdc operation @ 4 amps max. Double-sided board is 4½" x 2". **\$79.95** assembled with test data.

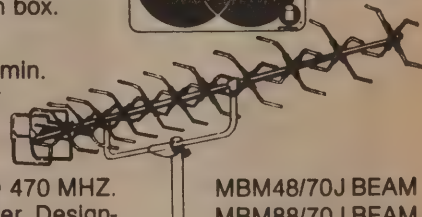
LA-45 UHF AMPLIFIER — Uses MRF 646. Input power of 6-15 watts typ. gives 20-50 watts output. Biased for linear operation. Kit includes all parts, instructions and 4.2"x 3" double-sided stripline board. Needs 12-14 vdc @ 9 amps max. **\$64.95** kit, assembled **\$80**. 4"x 5.5"x 1.75" heatsink **\$15.00**.

GLB T450L TRANSMITTER — 4½"x 2" RF board typically supplies 2—3 watts FM output, 1—1½ watts average video RF output. Changes for wideband video modulation provided. Comes with crystal for 439.25 MHX audio kit above. Also included separate 1"x 4" audio processor board which supplies audi for FM modulation for the A—2 4.5 MHZ audio kit above. 12—14 vdc @ 2 amps max. **\$69.95** kit, **\$89.95** assembled and tuned. *Kit now with pre-wound coils*

Shipping and Handling:
Add 3% — Minimum \$2.00

Indiana Residents
Add 5% Tax.

Add Additional \$3.00
for Blue Label



MBM48/70J BEAM
MBM88/70J BEAM
15.7dBd **\$59.95**
18.5 dBd **\$89.95**

COMMON TO ALL KITS AND MODULES — 12 to 14 vdc operation.. Drilled and plated glass circuit boards. Quality components with instructions including schematic and board layout.

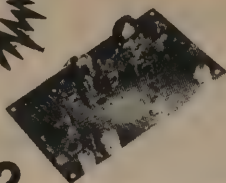
AVAILABLE FROM:

WYMAN RESEARCH INC., RR #1 Box 95, Waldron, Indiana 46182 — (317) 525-6452

Turn a few hours work into years of fun with Amateur Television.



ATV-2



\$59.95

ATV Converter*

The new ATV-2 converter has two super sensitive RF Pre-amplifier stages using the low noise MRF-901 (1.7 dB NF) transistors. The ATV-2 tunes from 420-450 MHz and down converts to channels 2, 3, or 4 on your standard TV set. The circuit uses durable microstrip design for stability and simplicity. The combination of a dual RF stage, the microstrip design, and the hot-carrier diode double-balanced mixer reduces UHF TV intermod problems. The local oscillator is varactor controlled for ease of tuning. An additional feature not found on other ATV downconverters is the incorporation of a post amplifier stage (6 dB min gain) following the double-balanced mixer. This post amplifier stage is used to overcome the conversion loss of the mixer. The Post-amplifier also delivers a signal level that is acceptable to the TV set to overcome the TV set's sensitivity threshold. The addition of the Post-amplifier circuitry is most noticeable on every weak signal reception. Overall the Communication Concepts ATV-2 downconverter is just what you need to enjoy amateur television to the fullest extent.

ATV CONVERTER:

ATV-2-Wired and Tested..... **\$59.95 each**
 ATV-2-Pk Partial Kit..... **\$44.95 each**
 ATV-2-PCB Printed Circuit Bd only..... **\$10.00 each**
 ATV-2-I Instruction Manual Only..... **\$5.00 each**

Specifications

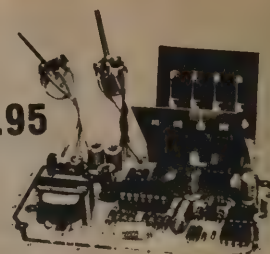
RF Input..... **420-450 MHz**
 RF Output..... **Channels 2, 3, or 4**
 DC Input..... **+12 Vdc at 50 ma**
 RF Stages..... **2 (MRF-901)**
 LO..... **Varactor Tuned**
 Fine Tuning Range..... **Approx. 30 MHz**
 Pre IF Stage Gain..... **6 dB Minimum**

Audio Squelch Control

You have a squelch on your 2 meter equipment; why not add a squelch to your ATV monitor. Now you can avoid the major problem of operating ATV—the annoying hiss and static when the signal is not present. With the ATV squelch, you no longer have to turn the volume down when the signal disappears and risk the chance of missing a signal.

The squelch easily connects to the TV receiver audio stage without modification of the TV, since the squelch circuit contains its own audio output stage. You must provide your own speaker. Operator safety is provided by using transformer isolation between the receiver and the squelch circuit, thus eliminating the shock hazard when using a "hot chassis" type TV receiver.

\$34.95



SIL-K Complete Kit—includes a detailed instruction manual, printed circuit board and all electrical components. Kit does not include case, speaker and regulated power supply (10 to 15 volts @ 250mA).

SIL-PCB Printed circuit board only **\$10.00**

100 Watt Linear Amplifier

Now you can get on the air with a high power 100 watt class B linear amplifier for SSB-FM or ATV on the 420 to 450 MHz band and still not spend a lot. This kit is described in Motorola engineering bulletin EB-67 and is available in a number of configurations. For full output, a minimum of 16 watts is required for excitation with an input SWR of not higher than 2:1. Output will maintain stability with a 3:1 collector mismatch at all phase angles. A designed-in low-pass filter suppresses the 2nd harmonic to at least 63 dB down. An external power supply capable of providing 28 VDC, regulated, at 10 amps is also required.

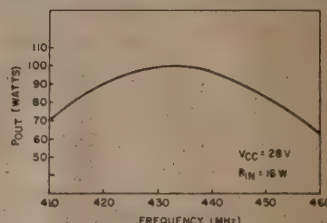
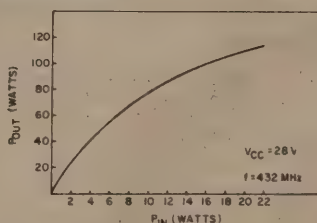


\$119.95

KEB-67-PK Kit includes detailed step-by-step instructions, printed circuit board, and all electronic components as shown.

KEB-67-PCB Printed circuit board only **\$14.00**

KEB-67-I Instruction manual only **\$5.00**



P.C. Boards

The FCC does not allow us to sell Broadband RF amplifier kits in the HF range, therefore we can only offer the printed circuit board and parts on a piece-by-piece basis.

140 watt power amplifier as described in Motorola engineering bulletin EB-63. **EB-63-PCB**

100-180 watt power amplifier as described in Motorola application note, AN-762. **AN-762 PCB**

300 watt power amplifier as described in Motorola engineering bulletin EB-27A. **EB-27A PCB**

Transformers, transistors and other parts are also available.

We also specialize in hard-to-find components.

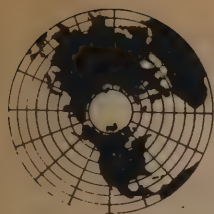
In addition to our kits, we also stock parts for other Motorola application notes and engineering bulletins. We have an in-depth stock of Motorola VHF and UHF transistors, Underwood metal clad mica capacitors (Unelco), Kemet chip capacitors, Cambion RF chokes and Ferroxcube Ferrite beads and RF chokes plus other difficult to find parts. If you are having trouble finding a part, call us, we probably have it in stock.

"NEW PRODUCTS ARE COMING! WATCH FOR DETAILS...."



Communication Concepts Inc.

2648 North Aragon Ave. • Dayton, Ohio 45420 • (513) 296-1411



"CRANK UP THOSE AMATEUR TELEVISION ANTENNA TOWERS"

HERE COME'S THE 1984 NORTH AMERICAN FSTV-UHF CONTEST!

*** EXPANSION TO 7 DAY PERIOD WITH 3 TOP PRIZES ***

STARTS 0001 AUGUST 20th, 1984

ENDS 2400 AUGUST 26th, 1984

Have you mounted those ATV antennas up at full height yet? Does your UHF preamp and linear amplifier need reapeaking? If so, you'd better get it all done quick, cause here comes the 1984 A5 ATV MAGAZINE SPONSORED ANNUAL "NORTH AMERICAN FSTV UHF CONTEST!" Normally, "A5" Contests in the past have always been 48-72 hours in total length. We are going to try something different this year that has never before been accomplished in any known U.S.A. Amateur Radio Contest. Beginning at 0001 Eastern Daylight Savings Time (EDT) on Monday, August 20th and continuing for a period of 7 days (168 hours) until 2400 EDT on Sunday evening, August 26th, 1984, Amateur FSTV operators across North America will be competing for "top honors" seeking UHF-TV two-way contacts within their respective zoned districts. THIS SHALL BE OFFICIALLY RECOGNIZED AS "A5 WEEK" AND WILL BE THE ONLY ANNUAL FSTV CONTEST PER YEAR (held each August).

Contest Rules and Guidelines

All FSTV Stations in Mexico, the United States and all provinces in Canada are eligible for entry regardless of status of affiliation of the sponsoring organization. *It should be noted that although outside "A5" publicity is sought after and published in other Amateur Journals, only official scoring data and other pertinent information is published in THE USATVS JOURNAL. Contacts must be made on FCC authorized and recognized areas of UHF and above Amateur bands designated for FSTV operations with power limitations determined by the governing agency. No station may claim another station more than once per band with crossband contacts authorized and encouraged. Portable and mobile FSTV contacts are permissible as long as proper verification exists as to station location and frequency simplex operation. THE USE OF ATV REPEATERS IS PROHIBITED FOR THE POINT SCORING PROCESS DURING THIS CONTEST. If a situation exists where the operator's only available ATV channel transmit frequency is that of an accessible FSTV Repeater input, visual sightings by receive stations MUST BE DONE ON THE "SIMPLEX" INPUT SIDE OF THE ATV REPEATER SYSTEM (Not the repeater's output frequency) to count as legal scoring point accumulations for this contest. Cooperation and monitoring among Repeater Groups/Clubs to this condition is appreciated. This exception is not to discourage the regular use of FSTV relay facilities, but to ensure self-operator esteem and accomplishment during the assigned Contest period. All ATV contacts must contain the following minimum required "video picture" information for scoring 10 or more point totals; Station callsign identification and geographical location as well as the given P-SIGNAL STRENGTH SIGNAL REPORT (increments 1-5). Video detectable and verifiable SYNC BARS count only as the minimum scoring accumulation point total. The use of FM On-carrier, Sub-carrier, independent or auxillary frequency

audio coordinating communications is permissible and may be counted for extra additional points.

Point Accumulation Totals

Point accumulation scoring shall be in the form of separate RECEIVE/TRANSMIT "base report" description times a PICTURE QUALITY, DX DISTANCE and BAND USEAGE MULTIPLIER factor as used successfully in our 1983 Contest. Distances are to be rounded off to the nearest 25 mile increments. Mapped drawing references, Contest photos and or videotapes should also be submitted along with the official logsheet entries to be postmarked no later than September 10th, 1984. Please include a summary of personal Contest events and ATV station setup description, brief comments on local and DX activity achievements as well as UHF band condition occurrences.

Top Score Prizes!

All "A5" NORTH AMERICAN FSTV UHF CONTEST entrants will receive personalized FSTV Contest Participation Certificates suitable for framing with logsheets and materials returned as soon as possible after official declaration of winners are announced. Stations taking top point total honors in all recognized ARRL Districts (1-Zero) will receive published HONORABLE MENTION and a "FREE" HAMFEST! (C) 1984 GAME PRIZE Award (Retail value \$19.95). TOP PRIZE for the highest points scored per country will receive an extension of subscription to the USATVS JOURNAL by ONE-YEAR. THE OVERALL, HIGHEST SCORING WINNER IN THE "1984 NORTH AMERICAN FSTV UHF CONTEST" SHALL RECEIVE A SPECIAL BEAUTIFULLY ENGRAVED "A5 SYMBOL" WOODEN PLAQUE noting the accomplishment with the operators name and ATV station callsign going into the "A5 ATV MAGAZINE "ATV HALL OF FAME" (See details in our September issue!). Past NA FSTV and WAS/DX Overall Contest Winners will also receive the new engraved wooden plaques this fall.

OK, there's the details-now what's going to be your excuse for not operating the contest this year? Get out there and shock your local ATV community by keying up with video & changing "snow" to "glow"! -A5

**A5 Contest
P.O. Box H
Lowden, IA**

**TURN PAGE TO CHANNEL 14 TO SEE
N.A. FSTV CONTEST POINT TABLE!**

MITSUBISHI P50U UPDATE:

"A5" was the first
to publicize it, while
others followed...



It is interesting to note that large NATIONAL VIDEO and PHOTOGRAPHY magazines are just now picking up on the MITSUBISHI P50U Video Printer. The MAY 84 issue Popular Photography runs a new product column entitled "Pop Photo Snapshots" in which a picture of the P50U unit and a brief description was included. Closing comments were to "look in a year or so for a color version". A5/USATVS member Brian Davis W9HLQ of Tully Park, Illinois sent us a copy of a very lengthy two-page article by author Fred Blechman of the popular Computers and Electronics Magazine. Mr. Blechman reports to his readers on the use of the P50U unit for computers as well as video applications.

"A5" was the first known publication in North America to publicize MITSUBISHI's new product. Our April Vol.14 No.4 issue carried a half-page product announcement followed in our May Vol.14 #5 issue with several pages including actual off-the-air pictures. To date, we have seen no retail facility handling the MP50U units for the consumer. When we do we will certainly make the "A5" reader aware of it.*

While we are on the subject of "firsts", Henry Ruh KB9FO former editor/publisher/owner of "A5" stopped overnight with his growing son Chuck for a visit in mid-June. During a late night B.S. session, he pointed out a few of the "A5" firsts that he was proud of during his reign as Captain Video. The one he boasted most about was the publishing of a relatively unknown HAM MICROWAVE experimenter by the name of Bob Cooper-then a W5 in Texas (still an active "A5" subscriber today!). Henry published what "Coop" was up to in intercepting TV signals from SPACE in a series of A5 articles from 1976-1977 (See Master Index Guide). Five (5) years later, it was Wayne Green W2NSD that decided TVRO's were the coming electronics fad for "73 MAGAZINE" readers. "A5" readers can rest assured, that when it comes to Specialized HAM-TV Communications-they are usually "the first to know!"

*See Ad
section
Channel
40 for
special
offer..

CHANNEL 14

Introducing The New PROC-AMP 1

From
GRIFFIN ENTERPRISES

Are you plagued by Sync Compression in your FSTV system? Would you like to do fancy video fadeouts without loss of sync lock? Would you like complete control of the video levels in your VTR or TVRO setup? The new 'PROC-AMP 1' is designed to give you independent control of the video and sync levels with any FSTV, TVRO or video production system and can be installed into existing equipment as well as built into a free standing unit. Requires standard composite video input and 12-15 vdc @ 50 ma.

Board and Parts Kit \$25.00
Assembled and Tested Board \$35.00

Add \$1.00 Shipping and Handling for each board.
S.C. Residents add 4% Sales Tax

GRIFFIN ENTERPRISES

Post Office Box 6104
Sumter, South Carolina 29150-6104

Got A Subscription Problem? Want to order a book or tape?

A5/USATVS MEM. SERVICES



"ASK FOR
PAT"

No Collect Calls
Accepted

(319) 944-7669

HOURS 8-9:30 A.M. 4-9:00 P.M. CDST

1984 NORTH AMERICAN FSTV - UHF CONTEST SCORING TABLE

Base Points Table

RECEIVE

Points	Contact Type
4	Verified Video Sync Bars
10	Locked-up B/W Picture
15	B/W Picture with Audio
20	Color Picture
25	Color Picture with Audio
Picture Quality Multipliers	
Base point times P-signal quality level	
Base times 1 = P-0 to P-1 picture	
Not usable, lost in noise, limited use	
Base times 2 = P-2 picture	
Passable picture, high noise level	

EXAMPLE: W6ZIM Chicago works N9BMM Milwaukee, B/W ATV Video with sound, P-3 level quality at a distance of 82 miles on 1200 Mhz. Score would be: Base Points: 18R + 16T = 36x3 (P3) = 90x4 (80 miles DX) = 360x2 (Band Multiplier) = 720 points.

TRANSMIT

Points	Contact Type
5	Verified Video Sync Bars
10	Locked-up B/W Picture
15	B/W Picture with Audio
20	Color Picture
25	Color Picture with Audio
Base Times 3 = P-3 picture	
Fair picture, noticeable noise	
Base times 4 = P-4 picture	
Good picture, slight noise visible	
Base times 5 = P-5 picture	
Excellent, closed circuit, no noise	

DX Distance Addition

(Base point totals time P-signal Quality Multiplier times DX Distance Multiplier)

Distance in miles, rounded to nearest marker, times multiplication factor.

Less Than 10 - No Multiplier

10	X	2125	X	7
25	X	3150	X	8
50	X	4175	X	9
75	X	5200	X	10
100	X	6(Etc)	X	

Band Used Multipliers

(Base times P-signal multiplier DX times band used)

1200 MHZ = times 2

2300MHZ = times 3

Higher frequencies = times 4

2 for 1
Performance
from
MIRAGE

ATTENTION ALL U.S.A.T.V.S. MEMBERS:

**UP YOUR AUDIO AND
VIDEO-TV SIGNALS WITH
A MIRAGE AMPLIFIER!**



**1-10 Watts Input
All-mode operation
5 year warranty**

model:

B1016 (2 meters)

1W In = 35W Out
2W In = 90W Out
10W In = 160W Out
with RX preamp!

\$279.95

C106 (220 MHz)

1W In = 15W Out
2W In = 30W Out
10W In = 60W Out
with RX preamp!

\$199.95

D1010 (430-450 MHz)

1W In = 20W Out
2W In = 45W Out
10W In = 100W Out

\$319.95

There's more, and
WATT/SWR Meters, too!
See your nearest Dealer

**MIRAGE
MIRAGE
MIRAGE**
COMMUNICATIONS EQUIPMENT, INC.
P.O. Box 1392
Gilroy, CA 95020
(408) 847-1857
made in U.S.A.

FSTV AUDIO SUBCARRIER "BOOSTER"! VIDEO MODULATOR CIRCUIT FOR AMPS

by Dwight Redditz WA9EUN
2429 Wolfe Drive,
Woodridge, Illinois 60517

Hi Gang! It's been awhile since my last article on ROBOT 450C COLOR SSTV (Dec. 83 Vol. 13 #12 issue). Let's talk about Fast Scan TV for a bit. Have you ever been in a situation when you needed more Audio Subcarrier without distorting the video? Well this little circuit is being used by many ATV'ers around the Midwest with excellent results. It provides exceptional mixing quality without distortion along with providing a low impedance output sufficient to drive any of the modern video modulators being used today. The circuit provides an essentially flat bandpass to 10MHz and exhibits excellent color and graphic quality.

(Circuitry shown on Channel 16)

THEORY OF OPERATION- Q1 is a FET with high impedance input which provides amplification to drive transistor Q2. Q2 changes the voltage across varicap at an audio rate changing the capacitance in series with the 18uH coil causing the 4.5MHz oscillator Q3 (source output) passes only the 4.5MHz FM frequency to the mixer and nulls out the 60 cycle sync which normally would be applied to the mixer. The Linear Mixer Q4 mixes the signals over a wide input range without distorting. Q5 provides a gain of 2.5 to both signals (audio + video) and Q6 lowers the output impedance to match 75 ohm coax by employing the emitter follower technique. Maximum video output with one volt input is 3.5 volts = Audio 3.2 Volts.

Video Modulator Circuit (Channel 17)

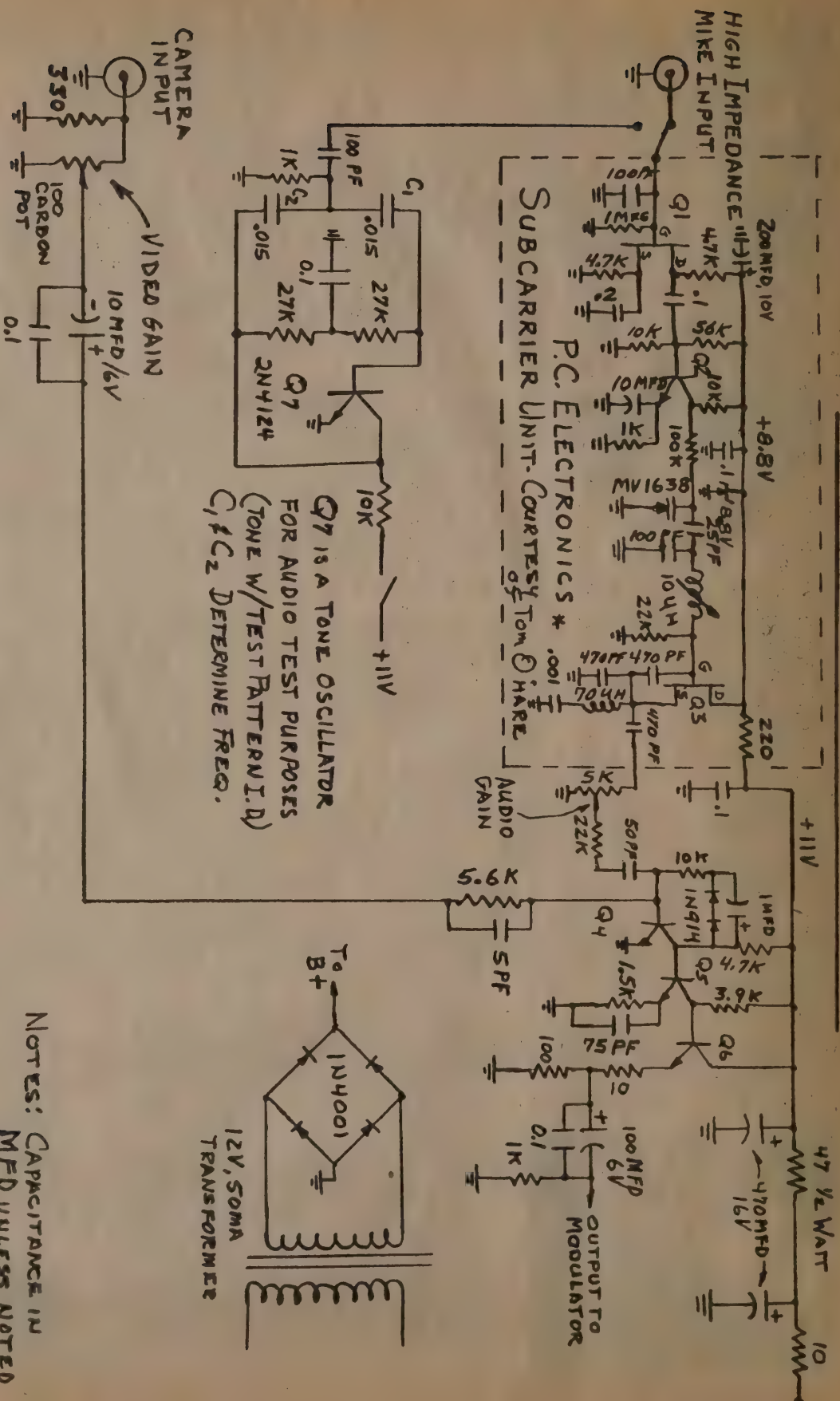
Since this a specially expanded ATV issue, please find on Channel 17-circuitry for a high powered Video Modulator for the TETRODE series of tubes (4CX150, 4CX250, 8122 etc.). This Modulator will allow the final tubes to be modulated directly or, it can be used as a constant bias source making the final amplifier a true, low distortion linear for ATV, SSTV or SSB. U60 is a PNP High Gain Amplifier with a voltage gain of 60. The 0.0012 MFD capacitor maintains the high frequency response to 10MHz. U10 is an isolation emitter follower which will drive up to four 4CX250B tubes. The problems with color phase shifting and character smearing due to video clamping have been eliminated by direct coupling the control grids to the video modulator. Closing the antenna relay contacts reduces the negative voltage on the base of U60 causing the collector of this amplifier to go negative cutting off the tube noise during receive conditions.

I leave the bias voltage set at negative 65 volts and set the screen control grids for +250 volts for ATV and CW operation. For sideband the screen grids are operated at +300 volts. The screen voltage is regulated and has a tendency to draw negative current (5ma) due to secondary electron bombardment within the tube. The plate voltage remains at 2000 volts and the plate current during ATV operation is 210 ma. One note of caution-- The emitter follower provides low impedance which provides stable bias that makes the linear easy to drive and on SSB conditions operators get carried away by letting control grid current to become excessive. When this happens the tubes are not being operated in the linear mode and distortion will occur. When properly loaded maximum output is in excess of 800 watts for a peak plate current of 900 ma. **CHANNEL 15**

73's WA9EUN



- AUDIO-VIDEO MIXER -



"REMEMBER, YOU SAW IT IN THE USATVS JOURNAL!"

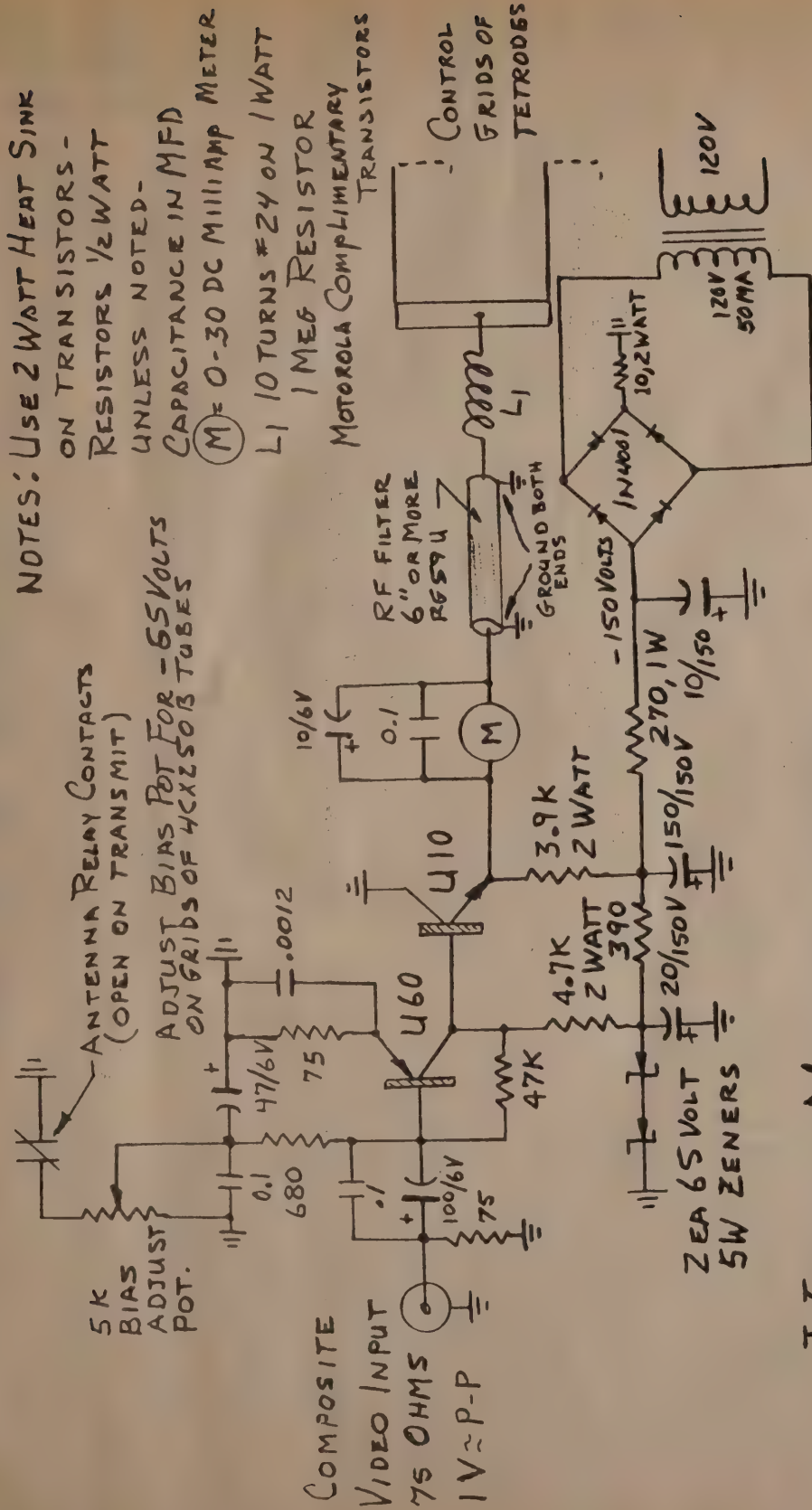
* P.C. ELECTRONICS HAVE A NEW DESIGN! CONTACT TOM O'HARE FOR DETAILS

W9ELN

VIDEO MODULATOR

FOR HIGH POWER TETRODE TUBES, 4CX250 ETC.

DESIGNED FOR K2RIW AMPLIFIER



VIDEO MODULATOR

FOR HIGH POWER TETRODE TUBES, 4CX250 ETC.

DESIGNED FOR K2RIW AMPLIFIER

WAEUN

USATVS Member W6ORG Speaks Out On Controversial

ARRL Bandplan Proposal for 1240-1300 Mhz.
Potential Problems Exist for FSTV Operators

Since the first report last March, actual hands on tests have been experienced with the ICOM 23 CM repeater and mobile equipment of such significance that I felt this follow up report was necessary. IC-120 MOBILE FM TRANSCEIVER- The first units that came out at the beginning of the year were reported to be very high in synthesizer spurs. The next group, one of which I had a chance to put on the bench, had inband spurs down only 37db. I purchased one around the first of June and found spurs were reduced to better than 45db, which is certainly now acceptable by most standards.

There have been some in other parts of the country that have proposed changing the ARRL band plan based on what they believed made getting on 23 cm with the ICOM equipment easier. After purchasing an IC-120, I must wonder where some of them got their information and if they understand the technical consideration for channel spacing, commercial standards, and how band planning must be done.

For instance, 1280 MHz was proposed as the national FM simplex frequency because some said that that was the frequency the IC-120 powered up on. Actually the IC-120 powers up on what every frequency it was turned off on. It has an internal memory backup battery. Not only that, as you take it new from the box or push the CPU reset, it powers up on 1260 MHz which is also stated on page 11 of the manual. I can only guess that whoever started the rumor only fired it up once after someone else left it on 1280, and didn't read the manual. In my personal opinion this is an example of a very irresponsible and non scientific way to publicize a proposed national standard let alone a band plan. I have a Kenwood two meter transceiver that powers up initially on 144.00, and since it's just a few clicks of the knob to 144.1 should we make that the national 2 meter FM simplex frequency?

Lets take a look at channel spacing. 20 kHz was proposed because of the ICOM repeater synthesizer increments. However, channel spacing must be determined by probabilities of adjacent channel interference. The occupied bandwidth is 16 kHz (16F3 emission). That leaves only 4 kHz, assuming 20 kHz channel spacing, for frequency drift. The drift spec of each radio must then be no more than 2 kHz since one could be on the low side on the upper channel and another drifting up on the lower channel. At 1260 MHz and 2 kHz frequency stability works out to .00015%. The ICOM IC-120 manual shows a frequency stability spec of .0005% or 6.3 kHz at 1260 MHz, and the IC-1210 repeater is .0001% or 1.3 kHz.

So on a hot summer day when someone just gets into their car, you could key up 2 repeaters at the same time or cause interference with 20 kHz channels. The SCRRBA technical committee was unable to verify if the frequency tolerance of the ICOM radios could support the 20 kHz spacing until copies of the manuals with specs were out and tests could be made. Now, after these tests and engineering information, the channel spacing on 23 cm in Southern California has changed to 25 kHz. This gives 80 clear FM repeater channels available in between ATV channels with the 12 MHz split plan. Commercial radios in the 800-900 MHz band are also on 25 kHz spacing and are speced at .00025% frequency tolerance. Strangely, the IC-120 manual talks about the "European" version of the radio which has 25 kHz spacing. I am curious as to how the USA was determined to be 20 kHz?

Temperature tests were made on one IC-120 over the range of 0 degrees C to +50 C for the following reasons. The ICOM spec does not tie frequency tolerance directly to a temperature range, but lists them separately. A look at the schematic and block diagram in both the mobile and repeater shows a TCXO in the PLL portion of the synthesizer, but open third overtone crystal oscillators that mix with the PLL. Tests on this one new IC-120 showed a worst case frequency change of 2.2 kHz at +50 degrees C after 30 seconds of key-down. The radio was soaked for at least one hour at each temperature and frequency measurements made upon turnon, at transmit times of 15, 30, 60, and 120 seconds, and again after 5 minutes of receive time to simulate usual mobile operation.

Although one radio is not enough of a sample size to base a firm conclusion, the frequency tolerance is better than half the published spec which will support 25 kHz spacing but not 20 kHz. (edited down from June 28th 23 CM FM Repeater Notes).

CHANNEL 18

"A5"

COMING UP IN OUR NEXT ISSUE!

- KLM 30 Element Antenna User Report
- ATV DX'ing Propagation Characteristics
- Inexpensive Air Monitor/VSWR-Power Meter for ATV
- Line Sync Decoder for NOAA7/Soviet Fax Satellites
- Packet Radio Update

—STAY TUNED—

Table 1 (WD4FAB)
Proposed 23-cm Band Plan by ARRL

Frequency (MHz)	Suggested Use
1240-1246	ATV no. 1, repeater output, - 40 MHz offset from input.
1241.25	Video carrier, VSB.
1246-1247	FM simplex, control links and guard band.
1247-1253	ATV no. 2 simplex.
1248.25	Video carrier, VSB.
1253-1258	ATV no. 3 simplex.
1254.25	Video carrier, VSB.
(Local option: 1246-1258 ATV simplex, DSB).	
1258-1260	Packet & digital repeater inputs, - 30 MHz offset from output, 200-kHz channel raster, e.g., 1258.10, .30, .50, ... 1259.50, .70, .90.
1260-1270	Satellite uplink, ref. WARC-79.
1270-1271	Alternate narrow-band, weak signals; CW, SSB & AM.
1270.0-1270.1	CW, beacons.
1270.025	EME calling frequency.
.100	CW calling frequency.
.200	SSB calling frequency.
.400	AM (and other modes) calling frequency.
1270.5-1271.0	Experimental.
1271-1275	FM repeater inputs, - 20 MHz offset from output, 20-kHz channel raster, e.g., 1272.01, .03, .05, ... 1274.95, .97, .99.
1275-1277	Crossband linear transponder & ACBS.
1277-1278	In-band linear transponder & ACBS inputs, - 20 MHz offset from output.
1278-1280	FM simplex 20-kHz channel raster, e.g. 1278.01, .03, .05, ... 1279.95, .97, .99
1279.99	National Simplex Frequency.
1280-1286	ATV no. 4, simplex, repeater input.
1281.25	Video carrier.
1288-1290	Packet & digital repeater output.
1290-1291	Packet & digital simplex.
1291-1295	FM Repeater outputs, 20-kHz channel raster, e.g., 1291.01, .03, .05, ... 1294.95, .97, .99
1295-1297	Narrow-band, weak-signal communications, CW, SSB.
1295-1296	CW, beacons.
1296.025	EME calling frequency.
.100	CW calling frequency.
.200	SSB calling frequency.
.400	AM (and other modes) calling frequency.
.600	RTTY calling frequency.
1297-1298	In-band linear transponder & ACBS outputs.
1298-1300	Crossband linear transponder.



Southern California Repeater and
Remote Base Association
P.O. Box 5967
Pasadena, California 91107

SOUTHERN CALIFORNIA 1240-1300 MHZ BAND PLAN
Revised June 1, 1984

SEGMENT (MHz)	USE	Pairs with	Notes
1240-1246	ATV Repeater Output	70 cm or 1289	1241.25 video carrier VSB filter required
1246-1248	Point-to-point links	1258-1260	Aux link, control
1248-1258	ATV Repeater Output	70 cm	1253 video carrier
1258-1260	Point-to-point links	1246-1248	Simplex, control
1260-1270	Satellite uplink & ATV simplex AO-10 uplink 1269.85-1269.05, downlink 436.15-436.95.	-	Amsat Oscar 10 1265 video carrier
1270-1272	FM Repeater Input	1282-1284	16F3 emission 25 kHz channels 1271.00 test
1272-1282	ATV Repeater Output	70 cm	1277 video carrier
1282-1284	FM Repeater Output	1270-1272	16F3 emission 25 kHz channels 1283.00 test
1284-1294	ATV Repeater Output, Input, link, as req.	70 cm or 1241.25	1289 video carrier
1294-1295	FM Simplex	-	1294.00 calling 16F3 emission 25 kHz channels
1295-1297	Weak signal CW & SSB EME (NO FM)	-	1296.000 KH6HME Beacon 1296.025 N-S, 1296.100 E-W calling
1297-1300	Data, Simplex, links	-	

"A5" EDITOR WBOQCD COMMENTS ON ARRL/W6ORG PROPOSALS

During any assembly of a frequency band plan, there are always a number of questions and placements that can be argued. We see a lot of time and forthought present in both proposals. Looking out for the needs of ATV'ers upmost, we see at least 4 questionable areas in the ARRL proposal by WD4FAB. 1. Previous band plans (including one just a year ago by KA1GT) have all included a wider bandwidth (10 Mhz) tolerance for FSTV signals. To date, ATV'ers and those using other modes of Amateur Communications, have not clashed anywhere in the country. To reduce Channelization down to 5 Mhz. widths is only asking for future potential problems. Those who are not involved in ATV operation or understand FSTV signal characteristics, always seem to be the ones who design band plans. Why isn't there an ATV'er on the VUAC Committee? It is a fact that all other modes including SATELLITES, CW, EME, FM and SSB are represented. 2. We question the obvious problems that are sure to occur if 1279.99 NATIONAL SIMPLEX Frequency is declared with ATV Channel 4 operation just 1 Mhz. away. We know who will be required to move. 3. It is interesting to note that SATELLITE frequency usage assignments now take up as much "operation room" per segment as ATV signals do. Will ATV'ers continue to be subjected to constant wide-bandwidth comments? 4. The ARRL should not automatically endorse (without question) any company who goes out and manufactures equipment against already approved band plans. It is obvious they did not do their homework. The question W6ORG raises about European versions with 25 Mhz. spacing is one that needs to be investigated and answered. We encourage all USATVS Members to give us their comments on this situation. - WBOQCD.

CHANNEL 19

AMATEUR TELEVISION

NOW MORE STANDARD FEATURES STILL **\$399** DELIVERED
TWO FOR \$750

ALL YOU NEED IN ONE BOX



TC-1 PLUS

SEE WHO YOU ARE TALKING TO! Show the shack, describe projects, run video tapes, computer programs, etc . . . in full color, sound, and in live action.

STANDARD FEATURES:

- **OVER 10 WATTS PEP RF OUTPUT.** Crystal controlled continuous duty transmitter. Specify 439.25, 434.0, 426.25 standard or other 70 cm freq. 2 freq option add \$26.
- **BASE, MOBILE, or PORTABLE.** Use the builtin AC supply or external 13.8 vdc at 3 amps.
- **TWO VIDEO AND AUDIO INPUTS** for camera, VCR, or computer. Wide bandwidth for high resolution broadcast quality color video or computer graphics. Standard broadcast sub-carrier sound which is heard thru the TV speaker. On-carrier audio optional at \$40.
- **RECEIVE ON YOUR STANDARD TV SET** tuned to channel 3 or 4. Sensitive varicap tuned downconverter covers simplex and repeater freq over the whole 420-450 MHz 70 cm amateur band. Low noise NE64535 preamp stage.
- **VIDEO MONITOR OUTPUT** of your transmitted picture makes video gain, lighting, etc. adjustments easy & accurate.
- **ATTRACTIVE 10½ x 3 x 9 CABINET.**

SO WHAT ELSE DOES IT TAKE TO GET ON ATV?

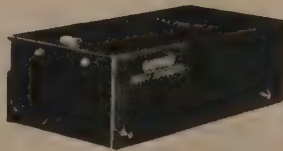
Any standard TV set is used as the receiver. The TC-1+ downconverts the 70 cm ham band down to channel 3 or 4. Just connect a short coax from the TC-1+ to the TV sets antenna input.

Any source of standard 1 volt composite video, such as is found in portable color or black and white cameras, VCRs, or computers can be plugged into the TC-1+ and transmitted to another station. Repeat SSTV to local ATVers. Audio can be from a low Z dynamic mic, or line level from cameras, VCRs, computers, etc.

The antenna is really the secret to success with ATV. We suggest the MBM 48/70 J Beam antenna with its high 14 dbd gain and wide bandwidth, and some of our Saxton 8285 low loss coax between it and the TC-1+. Antenna height at or above the tree tops makes a big difference.

Its really quite simple to have your own TV station capable of sending and receiving video 15 to 100 miles and more. DX with this set up is similiar to 2 meter FM with omni antennas.

THATS IT! Its easy!



ACCESSORIES:

- | | |
|--|-----------|
| KLM 440-27 14dbd 70cm beam antenna | \$89 del. |
| 450 AEA Isopole omni antenna | \$59 del. |
| Saxton 8285 low loss 50 ohm coax, 100 ft. | \$41 del. |

- | | |
|---|------------|
| Mirage D1010N 100 watt pep all mode amp | \$289 del. |
| Hitachi HV62U black and white TV camera | \$179 del. |
| Hitachi GP-8 8:1 zoom color camera | \$749 del. |

If you wish to build your own system, see module page. The TC-1+ contains the TXA5, PA5, FMA5, TVC-2L, & DM-1 module functions. Tech class or higher license required for purchase. Normal shipment within 2 days on charge card or postal money order.

P.C. ELECTRONICS • 2522 PAXSON LANE • ARCADIA, CA 91006 • (818) 447-4565

TOM W6ORG MARYANN WB6YSS

Build Your Own ATV Station With These Few Modules

The Basic 3 Transmitting Modules (buy all 3 save \$8) ... \$199



TXA5-5



PA5



FMA5

1. TXA5-5 ATV EXCITER/MODULATOR \$89 del

Wired and tested module provides 80 mw to drive PA5 10 watt power amp. High/low power switch for normal 10 watts with PA5, or adjustable for high power amps such as Mirage D1010N. Accepts standard 1 volt composite video from color camera, VCR, computer, etc. Wideband modulator gives excellent color and high resolution. Built in sync expander. Draws 70 ma at 13.8 vdc. One crystal included, but 2 freq requires another crystal at \$15. We stock 439.25, 434.0, & 426.25 mHz, other 70 cm freq may take 3 weeks. CA-1 on-carrier audio module add \$30.

2. PA5 10 WATT PEP ATV POWER MODULE \$89 del

A Motorola MHW-710-2 is mounted on a heat sink with stripline PC board to give over 10 watts pep video when driven by the TXA5. 50 ohms in and out. Broadband, covers the entire 420-450 mHz 70 cm band with no tuning. Draws a little over 2 amps at 13.8 vdc req.

3. FMA5 AUDIO SUBCARRIER GENERATOR \$29 del

Transmits broadcast standard sound with your picture. Accepts a low Z mic (100-600 ohms). also line level audio from VCRs, camera mics, computers, etc. Up to 1 v p-p drive to the TXA5, VM-2, or VM-4 modulators. Works with any transmitter with 5 mHz modulation bandwidth. Draws 20 ma from 13.8 vdc supply.

All modules can be run from a 3 amp 13.8 vdc regulated power supply. A good UHF T/R relay should be used, we stock the Magnacraft W120X-14 at \$44 delivered. The modules should be mounted in an aluminum chassis or cabinet for heat sinking and shielding. See chapter 14 of 1983 ARRL Handbook.

420-450 mHz ATV RECEIVING DOWNCONVERTERS



TVC-2



TVC-2G



TVC-4

TVC-2 ATV DOWNCONVERTER \$49 delivered

Wired and tested module connects between 70 cm antenna and TV set tuned to channel 2, 3, or 4. Varicap tunes the whole 420-450 mHz amateur band. Sensitive MRF901 preamp, stage digs out the weak ones and the hot carrier double balanced mixer resists intermods and overload. Requires +11 to 18 vdc at 20 ma.

TVC-2L more sensitive with NE64535 preamp stage \$59 del

TVC-2G most sensitive with GaAsFet (5db NF) stage \$79 del

It can be mounted in the shack, but is designed for antenna mounting for best sensitivity (Besides low noise figure, you gain the feedline loss). Has extra double tuned bandpass filter to reject strong UHF TV stations.

DCB DOWNCONVERTER CONTROL BOX \$59 del

Provides variable 10 to 18 vdc thru coax to antenna mounted downconverters such as TVC-2G and TVC-12G. Also has 15 db gain line amp to drive long lines or splitters. Ready to go, comes in same cabinet as TVC-4.

TVC-4 PACKAGED DOWNCONVERTER with AC supply... \$89 del

Contains the TVC-2, 120 vac supply, ready to go. BNC antenna input and F connector TV output. Handy for ATV demos, or community TV systems outside of the USA. Size is 5.3 x 2.5 x 7 inches.

TVC-4L contains the more sensitive TVC-2L \$99 del

*Attention clubs, groups and exporters the following quantity discounts apply to one module ordered at one time and sent to one address: 5-24 10%, 25-49 15%, 50-99 20%, 100-up 25%.

P.C. ELECTRONICS • 2522 PAXSON LANE • ARCADIA, CA 91006 • 213-447-4565

KLM BROADBAND ANTENNAS FOR ATV

NEW!

440-27 14.5 DBD GAIN
\$89 delivered

435-18C CIRCULAR POLARIZED
ALL MODE
\$65 delivered

SWITCHABLE! Optional CS-2 Circularity Switcher is antenna mounted. Features Remote Control (10-15 VDC key). Single Feedline.

\$59

440-6 PORTABLE
\$38 delivered

2N Dual splitter \$39
4N Quad splitter \$49

BANDWIDTH:..... 420-450 MHz BOOM LENGTH:..... 12 ft
GAIN:..... 14.5 dbd VSWR:..... 1.2:1
BEAMWIDTH:..... 36° FEED IMP:..... 50 ohm unbal
WT. (LBS.):..... 7.5 BALUN:..... 1:1, 2KW
MOUNT/MAST DIA.:..... Center 1 1/2"

BANDWIDTH:..... 420-450 MHz GAIN:..... 12 dbdc
BOOM LENGTH:..... 7.3 ft VSWR:..... 1.5:1
BEAMWIDTH:..... 44° FEED IMP:..... 50 ohm unbal
WT. (LBS.):..... 4.5 BALUN:..... 2-4:1, 1KW
MAST DIA.:..... Cen-Rear 1 1/2" Ellipticity:..... 3db MAX.

BANDWIDTH:..... 420-470 MHz BOOM LENGTH:..... 2 ft
GAIN:..... 8 dbd VSWR:..... 1.2:1
BEAMWIDTH:..... 80° FEED IMP:..... 50 ohm unbal
WT. (LBS.):..... 1.2 BALUN:..... 1:1, 2KW
MOUNT/MAST DIA.:..... Rear 1 1/2"

LOW LOSS COAX. 50 ohm Saxton 8285 foam RG8 type 100 ft roll ... **\$41** ppd
Only 3.5 db/100' loss at 400 mHz. Tight 95% shield.

AEA 450 ISOPOLE OMNI GAIN ANTENNA **\$65** delivered
High efficiency decoupling cones puts all the RF on the horizon where it counts. Great for local ATV round tables, portable with the Kreepie Peepie system, public service, FM remote base and repeaters. Ready to connect to your coax N connector and 1 1/4" mast. Low wind loading and DC grounded for ruggedness.

1200 MHZ ATV SYSTEMS

How about full duplex a atv? There are 5 atv channels on the 23 CM band starting at 1241 mHz with 12 mHz spacing available for repeater outputs, links, etc. Repeater output on this band with input on 70 CM lets you see your own video come back. Watch for our new KPA5-12 1 watt ATV transmitter to be out soon!

TVC-12G GaAsfet 23 CM DOWNCONVERTER **\$89** ppd
Sensitive GaAsfet remote varicap tuned 1215-1300 mHz to TV channels 7 or 8. Mounts on F9FT antenna to save feedline losses. Powered and tuned with 10-18 vdc thru coax from DCB control box. DCB Control Box with IF amp **\$59** ppd
F9FT TONNA 23 Element YAGI ANTENNA **\$49.50** ppd
16.3 dbd measured gain, 5'10" boom, with N connector. Quad stacking frame and 4x splitter **\$150** ppd

BUILD YOUR OWN ATV REPEATER WITH THESE BASIC MODULES:

PSF438-ATV INTERDIGITAL VESTIGIAL SIDEBAND FILTER **\$132.50** ppd
5 mHz bandwidth for good color and sound but rejection for no desense. Copper plated 7 pole for typ 1.3db insertion loss.

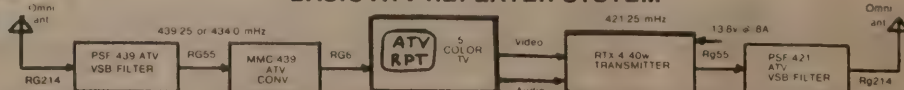
MMC439-ATV CRYSTAL CONTROLLED DOWNCONVERTER ch 3 IF ... **\$84.95** ppd
... 45.75 mHz IF \$99.95 ppd. low noise MRF901. 30 db gain.

RCM-3 REPEATER CONTROL MODULE. Detects horiz sync to key up xmtr. Timers to key effects boards: IDers, test pattern, etc. Bare P.C. Board ... **\$15** ppd Wired & tested ... **\$49** ppd

RTX-4 40 WATT PEP ATV REPEATER TRANSMITTER **\$799** ppd
Crystal controlled on 421.25 mHz. 7" high 19" rack panel contains shielded KPA5 exciter, VOR video operated relay, Mirage D24 amp, and fan. Req. reg 13.8 vdc at 8 amps and 120 vac.

NEW!

BASIC ATV REPEATER SYSTEM



SEE Chapt. 11 of "EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT AMATEUR TELEVISION" book for complete repeater info ... adding special effects, mixing two meters, getting rid of desense and interference from other transmitters at the same site, and special considerations with video operation.

THE "KREEPIE PEEPIE" ATV TRANSMITTER IS HERE!



KPA5 1 WATT ATV TRANSMITTER BOARD FEATURES:

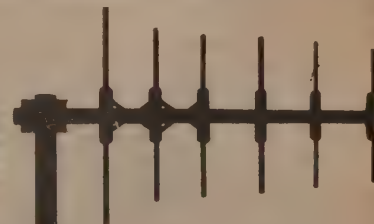
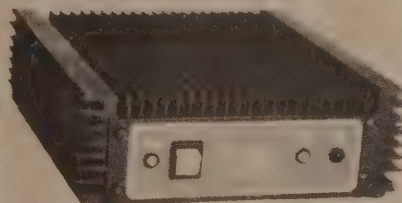
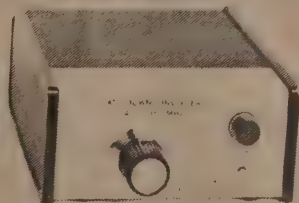
- ★ 1 watt pep minimum RF output on sync tip.
- ★ Full color and sound on one small 3.25 x 4" board.
- ★ Composite video input from camera, VCR, etc.
- ★ Runs on external 13.8 vdc at 300 ma supply or battery.
- ★ Wired and tested board covers 421 to 439 mHz.
- ★ Supplied with one xtal on 426.25, 434.0, or 439.25 mHz but capable of 2 freq operation with the addition of 2nd xtal (add \$15). Other 70cm freq. available on special order.
- ★ Mic input from a low Z dynamic and line level audio input found in most portable color cameras, VCRs, or home computers provided.
- ★ Schematic and application notes supplied for typical external connections, packaging, and system operation.
- ★ Price delivered via UPS surface in the USA is only **\$159**. Technician class amateur license or higher required for purchase and operation.



DO SOME OF THESE APPLICATIONS INTRIGUE YOU?

1. **PORTABLE CORDLESS TV CAMERA.** No heavy VCR to lug around or cable length limitation. You can even use your home VCR rather than a portapak. Now you can creep around and peep thru your camera more easily. Gives good pictures up to a mile with simple whip, and 40 miles using beams in flat terrain.
2. **MOBILE OR PORTABLE ATV** for public service events such as races, parades, marathons, etc. A Mirage D24 40 watt amp can be added for greater mobile coverage or base operation. Mount in an airplane for CAP and rescue searches for an eye in the sky.
3. **REMOTE CONTROL OF R/C AIRPLANES or ROBOTS.** Fly with a camera in the nose to control as if you are in the plane. Likewise a robot can now be out of site of the operator.
4. **REPEATER SITE SECURITY OR COMPUTER VIDEO DISPLAY.** Turn on thru your repeater a camera at the site to see the area, weather, read meters, or if a computer is used, show status, play games, etc. by remote control. With all the new technology using TV displays, it is natural for hams to adapt these new products to transmission over the air. What applications come to your mind?

WHAT IS REQUIRED FOR A COMPLETE OPERATION SYSTEM? A TV set with a TVC-2 or TVC-4 420-450 mHz to channel 3 downconverter, 70 cm antenna, and coax cable to receive. Package up the KPA5, add 12 to 14 vdc, antenna, and any tv camera, VCR, or computer with a composite video output. Simple, eh?



ACCESSORIES:

- Downconverter: TVC-2 wired & tested board \$49
- Varicap tuned. Requires +11 to +18 vdc at 20 ma.
- TVC-4 (TVC-2 in cabinet with ac supply \$89
- more sensitive "L" versions with NE64535 preamp stage add \$10.

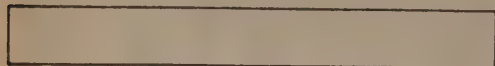
- Mirage D24 1 in / 40 watts out all mode amp. \$179
- 450 ISOPOLE omni gain 70cm antenna \$65
- KLM 440-6 8 dbd gain 60° beamwidth antenna \$38
- KLM 440-27 14.5 dbd gain broadband 70cm antenna ... \$89
- 100' roll Saxton 8285 50 ohm low loss coax \$41
- VOR Video Operated Relay board \$25

P.C. ELECTRONICS • 2522 PAXSON LANE • ARCADIA, CA 91006 • (818) 447-4565

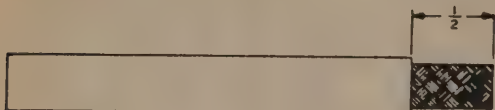
434

HOW TO PUT ON A PROPER TYPE-N CONNECTOR TO RG8U COAX!

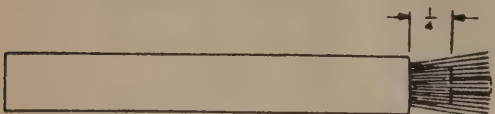
OK Fellow ATV'ers, it's back to basics! Here is 8 easy steps to correctly solder on a Type-N connector to RG8U Coaxial Cable. We all dread the thought-but one day-all those jumpers are going to get bought up at the hamfests. If you complete this course-you're ready to take on the ENC! -QCD



1. CUT END OF CABLE EVEN.



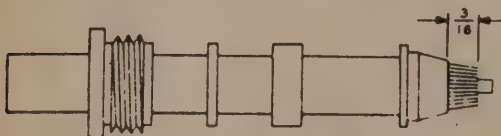
2. REMOVE VINYL JACKET $\frac{1}{2}$ INCH — DON'T NICK BRAID.



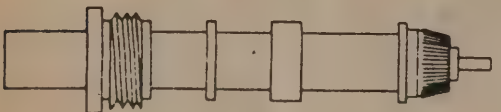
3. COMB OUT COPPER BRAID AS SHOWN. BARE $\frac{1}{4}$ INCH OF CENTER CONDUCTOR—DON'T NICK CONDUCTOR.



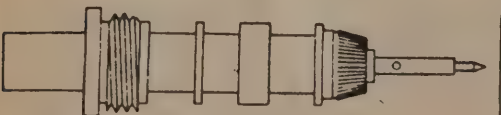
4. TAPER BRAID AS SHOWN. SLIDE NUT, WASHER AND GASKET ON VINYL JACKET. SLIDE CLAMP ON BRAID.



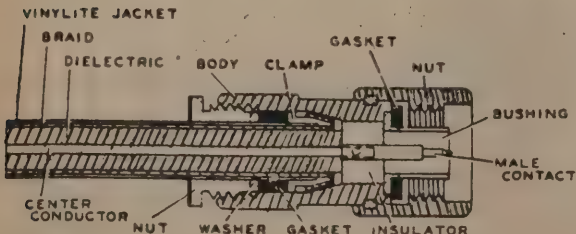
5. WITH CLAMP IN PLACE, TRIM BRAID AS SHOWN.



6. FOLD COPPER BRAID BACK ON CLAMP TIE CENTER CONDUCTOR, USING MINIMUM AMOUNT OF HEAT.



7. HOLDING CONTACT WITH PLIERS, SOLDER CONTACT TO CENTER CONDUCTOR. IT IS IMPERATIVE THAT BACK END OF CONTACT BE FLUSH WITH POLYETHYLENE DIELECTRIC. DO NOT USE EXCESS SOLDER. WIPE CLEAN—SEE THAT END OF CABLE INSULATOR IS CLEAN AND FREE OF SOLDER, ROSIN, AND FOREIGN MATERIAL.



8. SLIDE BODY INTO PLACE CAREFULLY SO THAT CENTER CONDUCTOR ENTERS HOLE IN INSULATOR. FACE OF CABLE DIELECTRIC MUST FIT FLUSH AGAINST INSULATOR. PROPERLY TIGHTEN BODY AND NUT WITH WRENCHES

Special Thanks to:
KLM Electronics
P.O. Box 816
Morgan Hill, Calif. 95037
(408) 779-7363

NOTES: 1. THIS ASSEMBLY PROCEDURE APPLIES TO TYPE N PLUGS. THE PROCEDURE FOR JACKS IS THE SAME EXCEPT FOR THE USE OF A FEMALE CONTACT AND A JACK BODY.

VOR VIDEO OPERATED RELAY

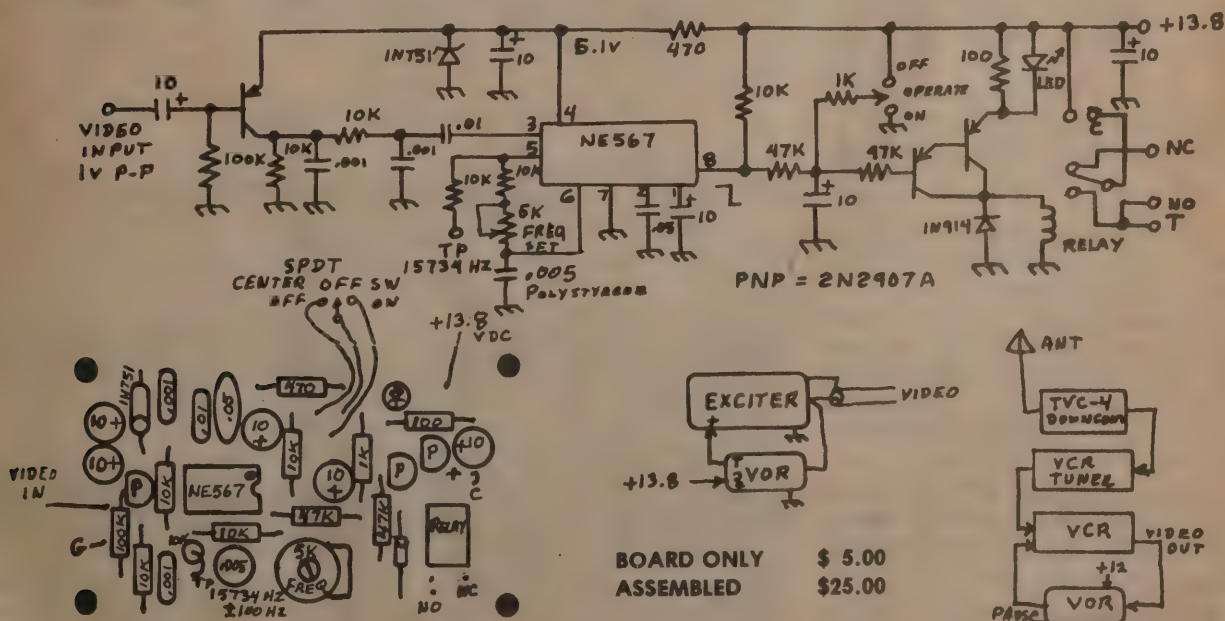
The Video Operated Relay module is designed to key a spst relay when horizontal sync is sensed at its input. It can be used in the "Kreepie Peepie" remote VCR application to key the pause control, or key a repeater or link ATV repeater as is done in our RTX-4 Atv Repeater Transmitter.

If your VCR has the received composite video present at the video output RCA jack, then the VOR video input may be connected there, and the spdt relay contacts connected to the pause control. When the VCR or repeater receiver is just seeing noise or snow, the VOR module relay is not energized placing the common (C) connected to the normally closed (NC) contact. Upon receiving a video signal, the common switches to the normally open (NO) contact.

The VOR circuit first separates the horizontal sync from the video and noise, then goes to a 567 tone decoder set to 15734 Hz (plus or minus 100 Hz), and after about a tenth of a second, keys the spdt relay. There is a delay drop out, or hang time of around .5 second, to allow for quick fades and multipath drop outs. The attack and delay times are determined by the 10 mf cap and the 47K resistors. Pads are also provided to manually inhibit key up or force key up thru a external switch. This is handy during repeater testing or VCR playback.

The frequency of the tone decoder should be set by using a frequency counter connected to the test point and carefully adjusting the 5K pot to within 100 Hz of 15734 Hz. This is done with no video connected. The normal lock-in range is around plus and minus 800 Hz to allow for odd computer horizontal sync frequencies.

To key a repeater transmitter exciter, up to 1 amp at 13.8 vdc can be run thru the relay contacts, or more with a second external higher current relay. To key our TXA5 or KPA5 ATV exciters, jumper the relay common pad to the adjacent +13 v pad, and run the B+ lead of the exciter to the NO pad marked T. Two holes are provided in case a 60 ma 12v transmit indicator is desired.



TAKING THE HORIZONTAL OMNI-ANTENNA JUST ONE STEP FURTHER... USING SIX KLM 440-6 BEAMS FOR ADDED GAIN! BRATS ATV GROUP EXPERIMENTING WITH ADDITIONAL SYSTEM

"Why uproot all area ATV'ers to vertical polarization causing polarity problems for all if ways can be found for horizontal Omni-Systems?"

The October 1983 Volume #13-10 issue of "A5", had an extensive article on a "modified" CUSHCRAFT AFM-440 OMNI-DIRECTIONAL ATV ANTENNA using two stacked pairs of four dipole antennas (mounted in a NORTH/SOUTH (back to back), EAST/WEST, NORTH/SOUTH, EAST/WEST direction on the N9CAI ATV Beacon System atop St. Ambrose College (150' above ground) in Davenport, Iowa. The unique feature of this antenna system was that the AFM-440 was used by some 15-20 area ATV'ers in the Horizontal polarization mode-yet still omni-directional. The system is still at use today, nearly a year later, with the addition of a real-time FSTV Repeater being implemented in the summer of 1984.

Still Need More Gain!

The only problem with this type of antenna system setup (as with most ground plane antennas) is in the lack of good gain in RF amplification. Davenport area BRATS (Big River Amateur Television System) Members are going to be taking this concept one-step further soon in the testing of 6 KLM 440-6 element beams mounted horizontally in a 60 degree spiral rotation pattern. KLM power divider splitters will be used with short pieces of Belden 8214 for the connection harnesses & Type "N" Connectors. It is hoped that with 6 antennas radiating a manufactured claimed 60 degree beamwidth pattern, that a full workable 360 degree omni-directional pattern will be utilized WITH GAIN! This system will be used on the TRANSMIT end of the FSTV Repeater System with the AFM-440 dipoles used for RECEIVE.

The KLM antennas and splitters were ordered thru PC Electronics in California (Antennas at \$39.00 each). The system (along with other popular ATV antennas) will be tested at the July CENTRAL STATES VHF CONFERENCE to be held in Cedar Rapids, Iowa before going up at the College location. A followup report, complete with dimensions, final spacing and position direction and gain factors will follow in a fall issue of "A5".

"What is your group using for horizontal polarizing antennas?"



CUSHCRAFT AFM-44

Dimension Data KLM 440-6

23		10.0
18		10.5
14½		10.75
10½	x x	4.75
7½		5.25
4½		5.375
*		**

xx 50 ohm feed point.

* Element spacing in inches.

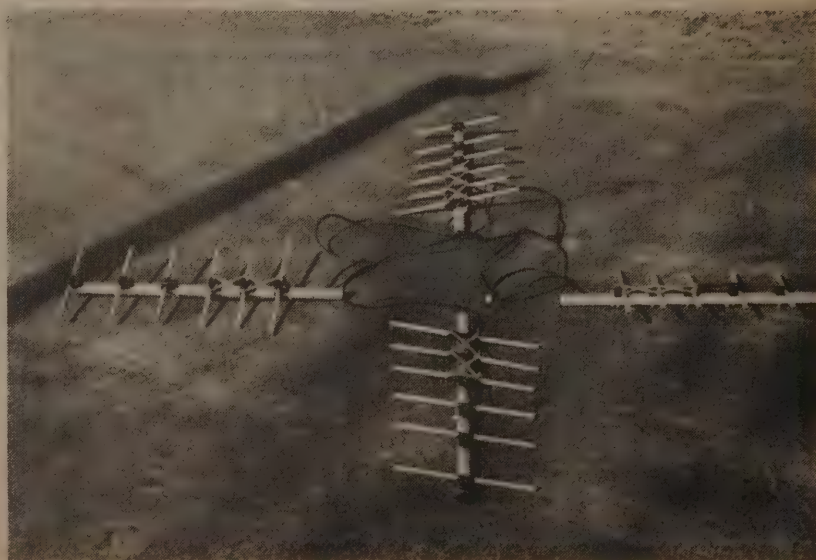
** Element length in inches.

KLM 440-6 SYSTEM "IN USE" BY NEW ATV GROUP IN ILLINOIS

Members of the Streator, Illinois ATV Group (K9APM) are already using a 4-bay version of the 6 element KLM-440-6 Beam antenna design in the horizontal mode. Reports and tests have showed good gain with a fairly omni-directional pattern with noticeable lobes. The system is mounted in a NORTH/EAST/SOUTH/WEST configuration in a back-to-back attachment at about 100 feet above ground. A drive around the local country side in an ATV Mobile (also horizontally polarized) netted about a 20-25 mile range pattern. It is felt that 6 or 8 of the KLM antennas mounted in a spiral winding pattern will give a better true omni-directional pattern.

STAY TUNED!

CHANNEL 26



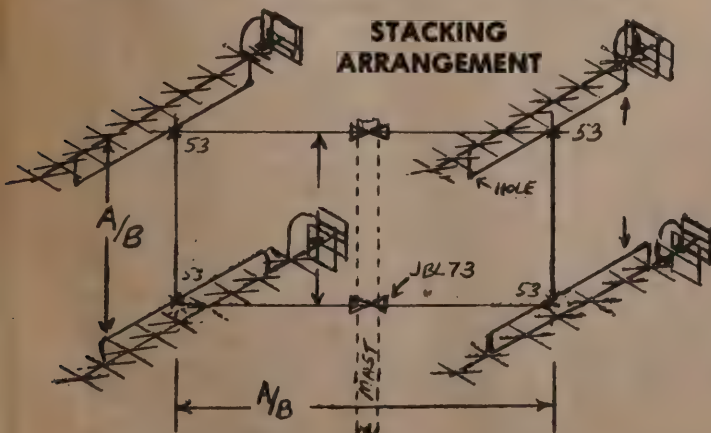
Streator, Illinois KLM System using J-Beam Phasing Harnesses

2/4 WAY STACKING OF ENGLISH MADE J-BEAMS (48/88 ELEMENTS) FOR AMATEUR TELEVISION OPERATION

The most popular multi-element, directional beam antenna for UHF FSTV operations has got to be the 48 or 88 element JAY-BEAMS manufactured and originated in England and distributed here in the U.S.A. by John Beanland G3BVU of Spectrum International, Inc. located in Concord, Mass. They work well for ATV (as well as SSB/FM/Satellites etc.) due to their unique backwards "X" design pattern and Quagi-type dual reflector elements which allows a very wide bandwidth over Amateur UHF spectrum of 420-440 Mhz. The antennas are factory cut for 435 Mhz. to satisfy SSB, Satellite and FSTV operators. It is an ideal antenna over YAGIS type designs in that it allows the ATV'er to make use of all allotted ATV channels in the 420-450 Mhz band. There is a 28 element version J-Beam also-but as yet unpopular in the U.S.

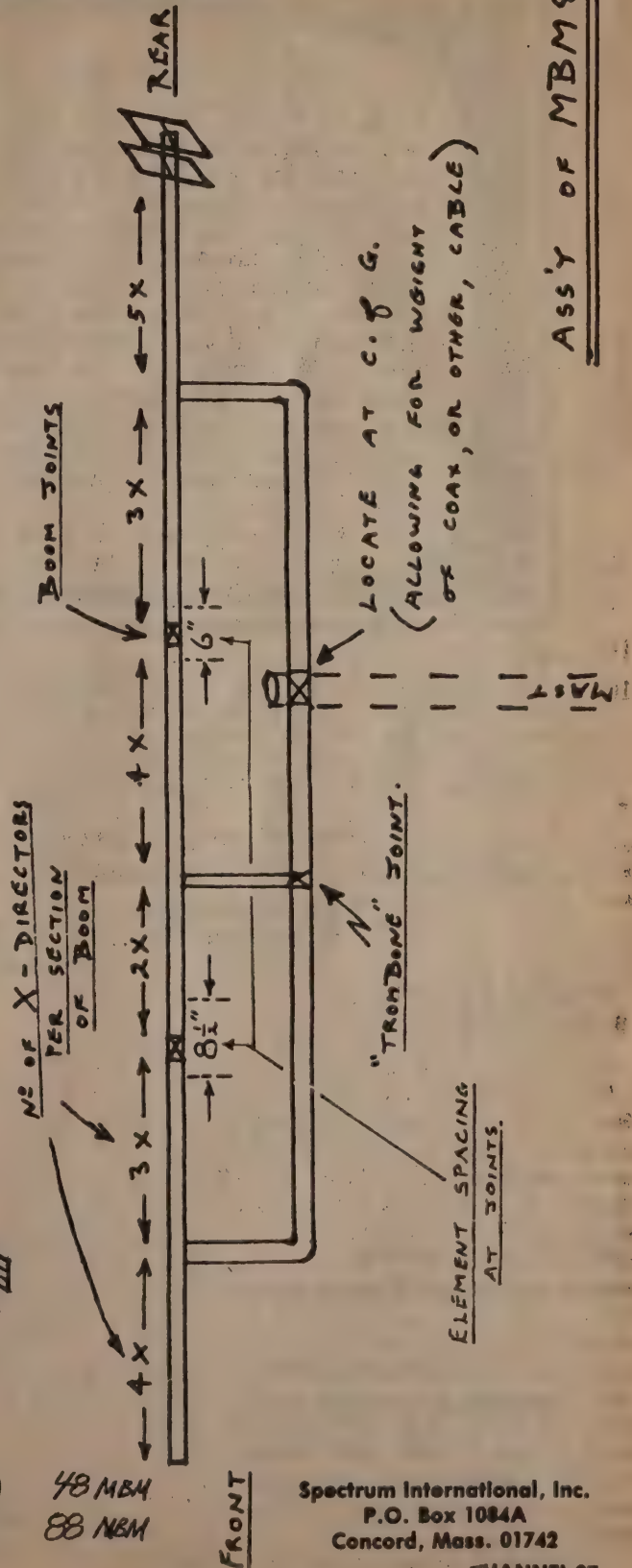
Now that prices have dropped on some of the models (48 and 88 element), many ATV'ers are looking toward adding extra gain by "stacking" two or more antennas together. Stacking two antennas in correct phase with proper distancing will result in an approximate 3db gain factor. A set of four 48 element J-Beams should measure around 20db gain, 88 element designs at 23db gain (realistic measured figures-not manufactures claims) which is equivalent to that of a dish on UHF.

There are two things to remember when stacking J-Beams; 1. You must use an H-Frame capable of supporting such an array. 2. DO NOT GET THE ANTENNAS OUT-OF-PHASE during the hookup arrangement! Spectrum has available, an H-Frame mounting frames which use two .883 wall X 57" wide and two .865 wall X 36" aluminum poles and 6 special heavy duty JBL53 and 73 mounting clamps. (The problem arises when the two bottom antennas are mounted hanging down from the main boom). Always watertight all connections and double wing nut the reflecting elements. A small hole drilled in the U-ARM of the support piece allows water to drain sufficiently with less chance of ice pressure buildup.



A = 48 to 52" boom to boom (both ways) 48 MBM
B = 72 to 80" boom to boom (both ways) 88 MBM

(Drawing shown using Horizontal Polarization)



ASSY OF MBM88

Spectrum International, Inc.
P.O. Box 1084A
Concord, Mass. 01742

CHANNEL 27

The Korea Times Los Angeles Edition

WHAT A WAY TO MEET HAMS!

John Ruckert, WB6-ZPN.

An article with photo of a Ham Radio operator in a local foreign language newspaper, revealed after translation that in the Los Angeles area at 9 P.M. on 145.565 is a Korean Language Net.

That night my joining in was welcomed with everyone switching to English. I happened to mention that among my gear is a 2-way UHF TV station.

Thanks to the Korea Times article, last weekend one of the net members was personally assisted in receiving Ham-TV operators in color on his own set at no cost.

What started with a still photo may become a live video net!



선, 제너럴, 어드밴스, 엑스
트라의 다섯단계로 나누어
져있어서 그에 따라 통신범
위와 주파수가 결정된다. 라
이센스의 내용은 법규와 기
초무선, 일주일정도의 공부

테나가 있는데 송수신기는
국내통신용이면 2백50달러
정도, 해외통신용의 경우에
는 1천달러면 된다.

미국내에서 소수민족들의
컴퓨터를 위한 행단체는

활동을 꿈꾸기 시작한 단계
에 불과하다.

일년전부터 취미로 아마
추어무선사가 된 아리랑을
탐 회장 한장씨는 그동안 문
화사절로서의 사명감을 가

회 이곳저곳에 자리잡은 벅
들을 허물 수도 있다면, 더
욱 보람있는 취미가 될듯하
다. 관심있는 분들은 (213)38
9-2250 한장씨에게 연락하
면 된다.

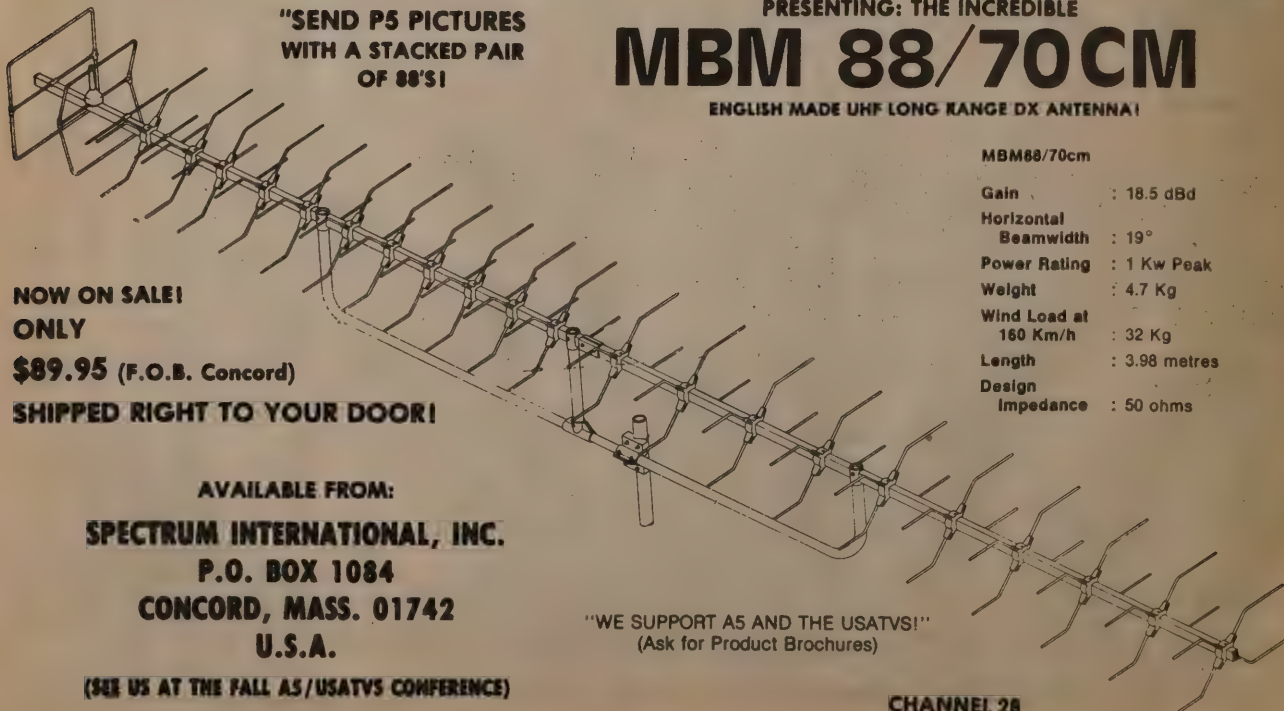
Send "A5" Your unusual story of getting HAM-TV going in your area!

"SEND P5 PICTURES
WITH A STACKED PAIR
OF 88'S!"

PRESENTING: THE INCREDIBLE

MBM 88/70CM

ENGLISH MADE UHF LONG RANGE DX ANTENNA!



NOW ON SALE!
ONLY

\$89.95 (F.O.B. Concord)

SHIPPED RIGHT TO YOUR DOOR!

AVAILABLE FROM:

SPECTRUM INTERNATIONAL, INC.

P.O. BOX 1084

CONCORD, MASS. 01742

U.S.A.

"WE SUPPORT A5 AND THE USATVS!"
(Ask for Product Brochures)

(SEE US AT THE FALL A5/USATVS CONFERENCE)

MBM88/70cm

Gain	: 18.5 dBd
Horizontal Beamwidth	: 19°
Power Rating	: 1 Kw Peak
Weight	: 4.7 Kg
Wind Load at 160 Km/h	: 32 Kg
Length	: 3.98 metres
Design Impedance	: 50 ohms

CHANNEL 28

ELEMENT LENGTHS:

R = 12, 31/32 IN

DE = 11, 7/16 IN

D1-D11 = 11, 1/2 IN

CONST: R, D1-D11 = 1/8" AL HELIAC ROD

DE = 1/8" BRASS BRAZING ROD

BOOM:

1/2" O.D. AL. TUBE

8.0 FT OVERALL

SPACING BETWEEN ELEMENTS:

S1 = 6, 1/11 IN S7 = 11, 23/32 IN

S2 = 2, 31/32 IN S8 = 10.0 IN

S3 = 2, 15/16 IN S9 = 10, 27/32 IN

S4 = 3, 1/8 IN S10 = 11, 3/32 IN

S5 = 5, 7/16 IN S11 = 10, 9/16 IN

S6 = 7, 9/16 IN S12 = 10, 19/32 IN

SPACING W.R.T. DRIVEN ELEMENT:

L1 = 6, 1/11 IN L7 = 33, 25/32 IN

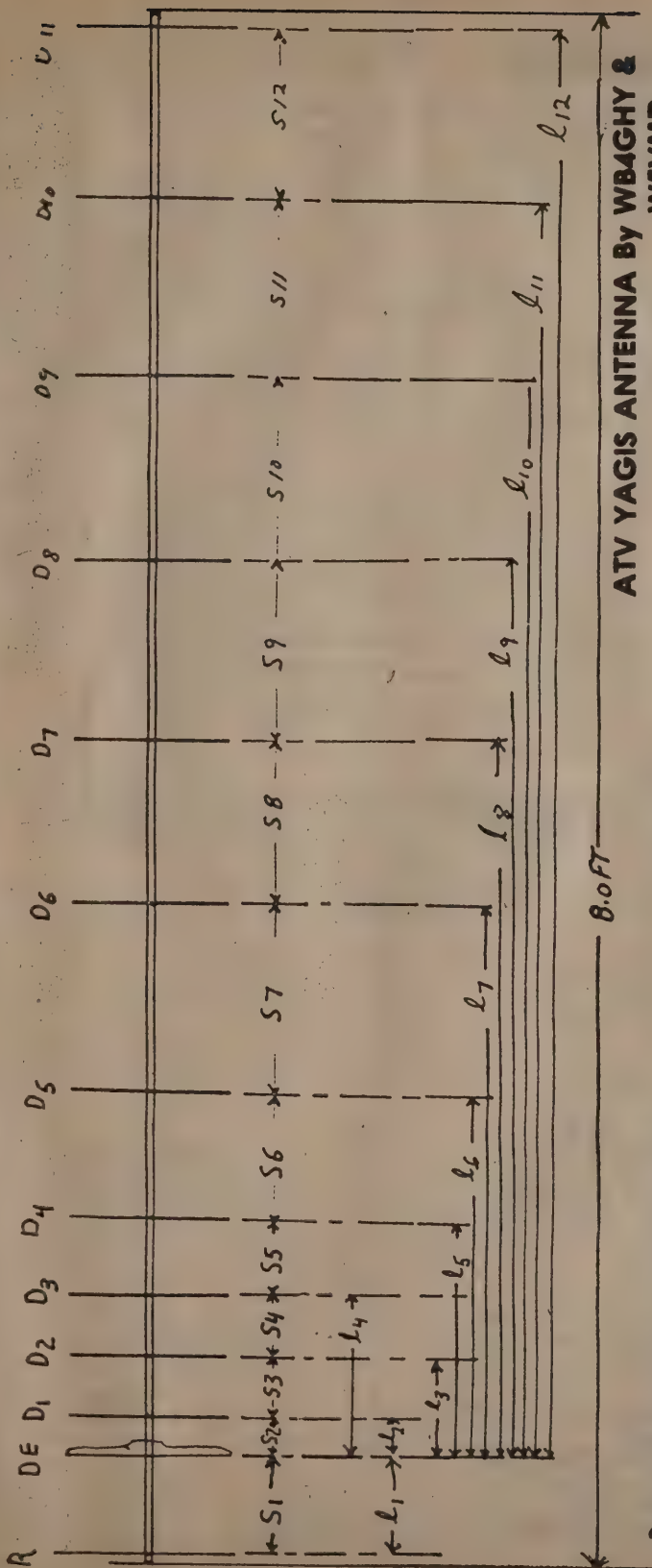
L2 = 2, 21/32 IN L8 = 43, 13/16 IN

L3 = 5, 29/32 IN L9 = 54, 21/32 IN

L4 = 9, 1/2 IN L10 = 65, 3/4 IN

L5 = 14, 15/32 IN L11 = 76.3 IN

L6 = 22, 1/16 IN L12 = 86.9 IN



PERFORMANCE PARAMETERS:

GAIN ≥ 17.03 dBi (measured)

F/B RATIO = 16 dB (measured)

BANDWIDTH ≥ 24 MHz (3.5 dB PIS-see Fig 1)

CUT FREQUENCY = 420 - 444 MHz

PATTERN: SEE ATTACHED (FIG 5)

FEED PT Z = 50 Ω UNBAL

NOTES:

1. FEED VIA BALUN

SEG FIG 2

2. ATTACH ELEMENTS

WITH PLASTIC BLOCK (SEE FIG 3)

3. D.E. CONSTRUCTION (FIG 4)

4. REF GAIN INT SHOWN IN FIG 6

ATV YAGIS ANTENNA BY WB4GHH & W5VMD

427-439.25 MHz

5. MEASURED GAIN

WAS 3.0 dB > CHUSKCH

DX-420

ATV YAGI

OVERVIEW FIG 1

DESIGN EVOLUTION IN RF P.A.'s



Now with GaAs FET Preamp

(See review in December '83 "A5")

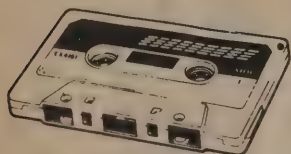
- Linear (all mode) RF power amp with automatic T/R switching (adjustable delay)
- Receive preamp option, featuring GaAs FETs (lowest noise figure, better IMD). Device NF typically .5 dB.
- Thermal shutdown protection incorporated
- Remote control available
- Rugged components and construction provide for superior product quality and performance
- Affordably priced offering the best performance per dollar
- Designed to ICAS ratings, meets FCC part 97 regulations
- 1 year transistors warranty
- Add \$5 for shipping and handling (Cont. U.S.). Calif. residents add applicable sales tax.
- Specifications/price subject to change

MODEL 1	FREQUENCY 2	OUTPUT POWER	INPUT POWER	SUGG. PRICE LESS TAX
	(MHz)	(W)	(W)	\$
1410	144	160	10	225
1410G				265
1412	144	160	30	199
1412G				239
2210	220	130	10	225
2210G				265
2212	220	130	30	199
2212G				239
4410	440	100	10	225
4410G				265
4412	440	100	30	199
4412G				239

1. Models with G suffix have GaAs FET preamps. Non-G suffix units have no preamp.
2. Covers full amateur band. Specify 10 MHz Bandwidth for 420-450 MHz Amplifier.

★SEND FOR FURTHER INFORMATION★

TE SYSTEMS
P.O. Box 25845
Los Angeles, CA 90025
(213) 478-0591



RELIVE THE SPACE SHUTTLE MISSION!

With "A5" Audio/SSTV Tapes!

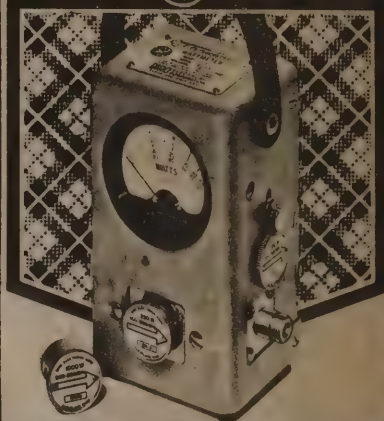
Audio Narration on Left Channel
SSTV Pictures on Right Channel
ONLY \$12.80 ppd

A5VT #116 8 Sec. SSTV Standard Res.
A5VT #117 34 Sec. SSTV Hi-Res.
A5VT #132 5 Hr. Videotape (\$40.00)

"A5" MEMBERSHIP SERVICES

P.O. Box H
Lowden, Iowa 52755

the indispensable BIRD43



THRULINE® WATTMETER

0.45-2300 MHz / 0.1-10,000 watts

The Standard of the Industry
What more need we say...

'THINK OF US WHEN YOUR READY
FOR YOUR BIRD TEST GEAR!'

AUTHORIZED BIRD DISTRIBUTOR

Webster
associates

115 BELLARMINE
ROCHESTER, MI 48063

CALL TOLL FREE

800-521-2333
IN MICHIGAN 313 - 375-0420

WRITE FOR OTHER ITEMS AVAILABLE



"SHOWN AT DAYTON 841"

"STANDBY FOR EXCITEMENT WITH"

AMATEUR RADIO

HAMFEST! ©1984

FUN FOR THE ENTIRE FAMILY!

A simple roll of the dice, lets you begin to "build" your ham shack. Purchase all the ham gear spaced around the board (from the retail store) that you can afford to buy. Study hard for those F.C.C. tests to advance you from Novice to Extra! Beware of QRM Interference and rejoice when getting those rare QSL cards. Hours of great fun for the entire family. Invite your other ham friends and standby for excitement!

Available By Mail Order

Please include \$3.00 for postage & handling

Send your order to:

Regular Price
\$19.95
SPECIAL PRICE
DISCOUNT FOR
USATVS MEMBERS
\$14.95
Plus Postage

QCD MARKETING SERVICES

A Division of QCD Publications, Inc.

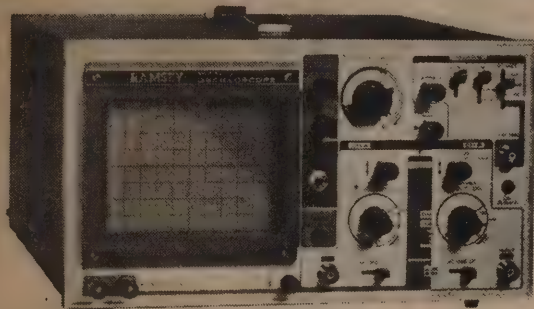
P.O. Box H

Lowden, Iowa 52255

IA. Residents and Credit Card
Users Add 4%

DEALER
INQUIRIES
INVITED



RAMSEY**THE FIRST NAME IN
ELECTRONIC TEST GEAR****"KNOW WHAT YOUR OUTGOING VIDEO SIGNAL REALLY LOOKS LIKE!"****BS-601 Oscopoe****NEW FROM RAMSEY-20 MHz
DUAL TRACE OSCILLOSCOPE**

Unsurpassed quality at an unbeatable price, the Ramsey oscilloscope compares to others costing hundreds more. Features include a component testing circuit that will allow you to easily test resistors, capacitors, digital circuits and diodes • TV video sync filter • wide bandwidth & high sensitivity • internal graticule • high quality rectangular CRT • front panel trace rotator • Z axis • high sensitivity x-y mode • very low power consumption • regulated power supply • built-in calibrator • rock solid triggering • high quality hook-on probes

\$399⁹⁵ high quality
hook-on probes included

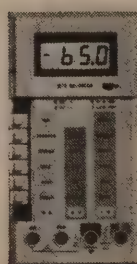
Tell 'em you saw it in "A5 ATV MAGAZINE"

**RAMSEY D-1100
VOM-MULTITESTER**

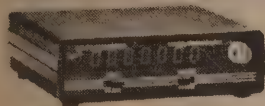
Compact and reliable, designed to service a wide variety of equipment. Features include • mirror back scale • double-jeweled precision moving coil • double overload protection • an ideal low cost unit for the beginner or as a spare back-up unit.

\$19⁹⁵test leads and battery
included**RAMSEY D-2100
DIGITAL MULTITESTER**

A compact easy to use unit designed to operate like a pro. Featuring • 3 1/2 digit LCD • low BAT. indicator • all range overload protection • overrange indication • auto-polarity • Transistor tester • dual-slope integration • vinyl carrying case

\$54⁹⁵hFE test leads, battery & vinyl
carrying case included**RAMSEY D-3100
DIGITAL MULTIMETER**

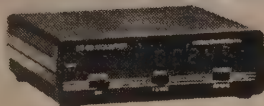
Reliable, accurate digital measurements at an amazingly low cost • in-line color coded push buttons, speeds range selection • abs plastic tilt stand • recessed input jacks • overload protection on all ranges • 3 1/2 digit LCD display with auto zero, auto polarity & low BAT. indicator

\$59⁹⁵test leads and battery
included**CT-70 7 DIGIT
525 MHz COUNTER**

Lab quality at a breakthrough price. Features • 3 frequency ranges each with pre amp • dual selectable gate times • gate activity indicator • 50mV @ 150 MHz typical sensitivity • wide frequency range • 1 ppm accuracy

\$119⁹⁵

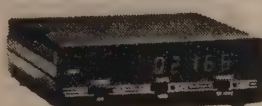
wired includes AC adapter

CT-70 kit \$99.95
BP-4 nicad pack 8.95**CT-90 9 DIGIT
600 MHz COUNTER**

The most versatile for less than \$300. Features 3 selectable gate times • 9 digits • gate indicator • display hold • 25mV @ 150 MHz typical sensitivity • 10 MHz timebase for WWV calibration • 1 ppm accuracy

\$149⁹⁵

wired includes AC adapter

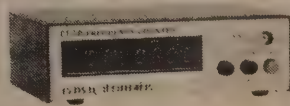
CT-90 kit \$129.95
OV-1 0.1 PPM oven timebase 59.95
BP-4 nicad pack 8.95**CT-125 9 DIGIT
1.2 GHz COUNTER**

A 9 digit counter that will outperform units costing hundreds more. • gate indicator • 24mV @ 150 MHz typical sensitivity • 9 digit display • 1 ppm accuracy • display hold • dual inputs with preamps

\$169⁹⁵

wired includes AC adapter

BP-4 nicad pack 8.95

**CT-50 8 DIGIT
600 MHz COUNTER**

A versatile lab bench counter with optional receive frequency adapter, which turns the CT-50 into a digital readout for most any receiver • 25 mV @ 150 MHz typical sensitivity • 8 digit display • 1 ppm accuracy

\$169⁹⁵

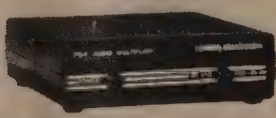
wired

CT-50 kit \$139.95
RA-1 receiver adapter kit 14.95**DM-700 DIGITAL
MULTIMETER**

Professional quality at a hobbyist price. Features include 26 different ranges and 5 functions • 3 1/2 digit, 1/2 inch LED display • automatic decimal placement • automatic polarity

\$119⁹⁵

wired includes AC adapter

DM-700 kit \$99.95
MP-1 probe set 4.95**PS-2 AUDIO
MULTIPLIER**

The PS-2 is handy for high resolution audio resolution measurements. multiplies UP in frequency • great for PL tone measurements • multiplies by 10 or 100 • 0.01Hz resolution & built-in signal preamp/conditioner

\$49⁹⁵

wired

PS-2 kit \$39.95

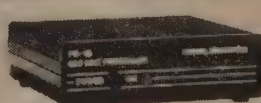
**PR-2 COUNTER
PREAMP**

The PR-2 is ideal for measuring weak signals from 10 to 1,000 MHz • flat 25 db gain • BNC connectors • great for sniffing RF • ideal receiver/TV preamp

\$44⁹⁵

wired includes AC adapter

PR-2 kit \$34.95

**PS-1B 600 MHz
PRESCALER**

Extends the range of your present counter to 600 MHz • 2 stage preamp • divide by 10 circuitry • sensitivity: 25mV @ 150 MHz • BNC connectors • drives any counter

\$59⁹⁵

wired includes AC adapter

PS-1B kit \$49.95

ACCESSORIES FOR RAMSEY COUNTERS

Telescopic whip antenna—BNC plug \$ 8.95
High impedance probe, light loading 16.95
Low pass probe, audio use 18.95
Direct probe, general purpose use 43.95
Tilt bail, for CT-70, 90, 125 4.95



**PHONE ORDERS CALL
716-586-3950**
TELEX 466735 RAMSEY CI

TERMS • satisfaction guaranteed • examine for 10 days; if not pleased, return in original form for refund • add 5% for shipping and handling to a maximum of \$10.00 • overseas add 15% for airfreight • C.O.D. and \$2.50 (C.O.D. in USA only) • orders under \$15.00 add \$1.50 • NY residents add 7% sales tax • NO cash parts • only on order • 1 year auto & labor warranty on all Ramsey units

RAMSEY

RAMSEY ELECTRONICS, INC.
2575 Baird Rd.
Penfield, N.Y. 14626

CLAY ABRAMS K6AEP QUILS DESIGNING TRS80C SOFTWARE!

THE END OF AN ERA FOR CW/RTTY/SSTV AND FAX ENTHUSIASTS ABRAMS TO MOVE INTO IBM COMPUTER AREA

The end of an era is near. With the publication of this article in AS, Clay Abrams K6AEP of San Jose, California, is ceasing any further software developments for the TRS80C COLOR COMPUTER. Abrams had, for past 3-4 years or so, been designing computer software for the Amateur Specialized Communication enthusiast interested in CW, RTTY, SSTV and FAX operation. His programs are commonplace in CW/RTTY and SSTV circles here in the U.S.A. The SSTV mode especially progressed in the state-of-art, allowing a very inexpensive home computer to do all sorts of tricks on the reception and transmission of Amateur still-frame visual pictures. Abrams work led to the experimentation of many others now offering similar program designs (although not nearly as complex). His articles and designs have been published in many leading Amateur Journals including 73 MAGAZINE and AS ATV MAGAZINE. The articles written for AS ATV MAGAZINE can be found listed in the AS MASTER ARTICLE INDEX GUIDE (published in the December 1983 Vol. #13-12 issue) under DIGITAL and COMPUTERS.

The decision to drop the TRS80C line of software programs can best be summed up in a recent reply letter to popular SSTV'er Herman Perkins W4TUQ dated June 28th, 1984. In this letter (copy provided to AS and NJ4E), Clay mentions his decision on getting out of the TRS80C software business, came after a long personal debate which finalized on a recent trip to Europe and the Mid-East. The reasoning given for K6AEP's backout is a complex series of events that started about 2 years ago with the downhill effect of SSTV general non-cooperation and bickering amongst SSTV groups. Then came some "on-the-air" and published "bad-mouthing" by the editor of an SSTV column in WORLDWIDE RADIO NEWS (and others) on the lack of good quality displaying to the monitor by the TRS80C software program (not fully understanding the limitations being placed on the Color Computer). Aside from misguided comments, Abram's TRS80C programs began selling like hotcakes and with it more TRS80C Color Computers and a host of sideline hardware interface dealers such as RTM CIRCUIT BOARDS, DYNAMIC SPECIALTIES, MULTIMODE CORP. and others. Even the future of the K6AEP interface businesses seems limited. TRS80C SSTV was everywhere including a new HF SSTV Computer Net started on 14.230 Mhz. by NJ4E in mid 1983.

The bickering continued amongst SSTV'ers and became almost tolerable until Clay began seeing "PIRATED" K6AEP software programs starting to appear in the marketplace. It was not enough to steal his software for personal use or to pass on to a friend, but PIRATES began mass distribution of the famous K6AEP programs for \$\$\$ profit. Literally hundreds of long hours went into the development of each program which later was to be duplicated in a matter of seconds and sold for selfish profits by pirates. Abrams also began receiving daily complaints about some of his unique programs. Not technical defect problems, but requests for customization for their own likes and dislikes

causing Abrams even more hours of frustration. Some, according to the Abrams/Perkins letter, even had the gall to ask for updates of pirated programs. A now popular S. Floridian SSTV'er has been suspected of passing around the "time source codes" used in the K6AEP software—a reputation which precedes his SSTV work. Even the newly formed TRS80C Net Control station has been "modifying" K6AEP Disk programs and has been passing them around rather freely. It is this "PIRATING" aspect, that encouraged the Abram's decision to cease giving time to a losing cause of helping those get into SSTV at a cheap affordable price using microprocessors.

Clay also mentions with the coming of the new ROBOT 1200 SSTV Converter and the very controversial 12 second color frame method, that will undoubtedly be the new wave of the future for SSTV'ers. It was ROBOT RESEARCH CORP. that demanded (in writing) a 18% royalty fee be paid to anyone who makes use of their 12 second SSTV frame rate technology (See AS "Are We Really Progressing The State-of-Art?" article in the MAY 1984 Volume #14-5 issue). After talking to ROBOT RESEARCH CORP. and conducting some initial experiments with the ROBOT 12 second color SSTV, it was determined that the TRS80C would not work out well as an interfaced computer.

As for the future of Clay Abrams K6AEP, he will be devoting his time to the new "IBM PC-XT" Computer. He will continue to develop software but NOT SELL IT so not to allow anyone else to obtain PIRATED copies. He will publish articles on his work with the IBM PC-XT unit and how it can be used for CW/RTTY/SSTV/FAX along with some simple diagrams. We hope he includes "AS" on his list of publishers! Abram's leaves the current TRS80C market for the Floridian/Iowan "PIRATE" Network although he will continue for awhile in developing his "FAX" software as he feels this is the way of the future for Amateur HI-RES. Visual Communications.

In conclusion, the irony of this sad closing to one man's unselfish devotion toward a brilliant addition to the Amateur Communications hobby in general, is that those for which he designed his software—turned around and ripped him off—hurting only themselves and those who could have benefited from his work in the years ahead. AS ATV MAGAZINE takes this opportunity to officially "thank" Clay Abrams K6AEP of 1758 Constock Lane, San Jose, California (95124), for his years of hard work and "very successful" accomplishments in the area of Amateur Radio Communications and the Home Computer! It is doubtful, whether another will ever contribute as much as he did... -W809CD

CLAY ABRAMS K6AEP - "A5" SSTV'ER OF-THE-YEAR 1982

"INTERFACELESS" AMATEUR RADIO PROGRAMS FOR YOUR TRS80C*!

SLOSCAN 1.1

16K machine language software from W8MBD. Receives SSTV pictures at 8, 17, or 25 second frame rates. Menu driven, low resolution 64x128 with 7 shades of grey. Uses audio cassette port. Pictures may be saved using "SAVE IT" utility program (supplied) and hard copied on Radio Shack GCP-115, NEC or Prowriter printers. A5 special "SHOWTIME" utility automatically loads & displays up to 22 pictures off disk. A great beginning slow-scan television program. Now with actual SSTV "Demo" segments!

Disk Version
Includes All 3
Programs Plus 18
SSTV Pictures.



*TRS80C is a registered trademark of Tandy Corp.

COCORTTY 1.0

This unique machine language program, copies and transmits standard 45.45 60 wpm. Baudot radioteletype signals. Uses audio cassette port. Text scrolls at bottom of screen (from right to left) with up to a 16 line, 512 character screen display. Keyboard controlled AFSK with a special CW/RTTY customized identifier "user friendly" program utility called MESSAGE GENERATOR, opening INSTRU program and RTTY DEMO sequence included on taped versions. Can be used as a silent video display for hardcopy RTTY demodulator systems.

(Write for Apple, VIC-20 or Commodore 64 versions)

"SLOSCAN" or "COCORTTY"

Cassette Versions
\$24.95

Both now include extra utility programs, documentation and taped demonstration segments.

DISK VERSIONS \$29.95

Please add \$1.50 postage/handling

QCD MICRO SOFTWARE SERVICES

A Division Of QCD Publications, Inc.

P.O. Box H

Lowden, Iowa 52255

Ia. Residents add 4%

COLOR COMPUTER

80C RTTY \$47 (Split-screen)

80C FSK TU kit \$45 assembled \$70

80C ROM CODE \$47 (split-screen)

80C TONE DECODER kit \$15 asmb \$25

VIC-20

VIC tape RTTY \$20 (split-screen)

VIC FSK TU kit \$46 asmb \$71

VIC tape CODE \$20 (split-screen)

VIC TONE DECODER kit \$16 asmb \$26

VIC EPROM PROGRAMMER kit \$45
2716 and 2732

add \$2 for postage on orders

send self addressed stamped
envelope for FREE information
(603) 435-6298

FRANK LYMAN
P.O. BOX 3091
NASHUA, N.H. 03061

ATTENTION ALL USATVS MEMBERS!



PSE
Send
SASE

TRS-80C Color Computer Software

(Over 2,500 Programs)

"We Swap - Send Us Your List!"

TRS80C LIBRARY SERVICES

105 Clinton Street,
Muscatine, Iowa 52761

RTTY RADIO TELETYPE FREQUENCY LISTS

2000 WORLDWIDE RADIO TELETYPE STATIONS by FREQUENCY... press, air, military, government, diplomatic, all utilities with calls, times, plus other information 3 to 30 MHz. \$12 POSTPAID

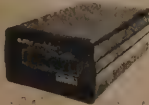
World Press Services Frequencies & Amount. All press services, frequencies and transmission times. BOOK with 3 LISTS...\$8 ppd.

UNIVERSAL ELECTRONICS
4555 Groves Rd. (Suite 3), Columbus, OH 43227

SEND "A5" YOUR AD
AND MAKE \$\$!

TIMEKIT PRESENTS: INSTANT SSTV-FAX-CW AND RTTY TUNING

No more missed reception trying to tune "by ear". "BLINKY'S" LED'S display tones for all these modes. To receive SSTV, tune till all LED'S blink. For FAX, tune phasing signal till 1500 & 2300 HZ LED'S light. For RTTY, tune for proper pair. For CW, tune to light 1500 HZ LED.



"BLINKY"
SSTV-RTTY-FAX TUNER

COST ONLY
\$99.95
ORDER YOUR "BLINKY"
TODAY!

TimeKit
P.O. Box 22277
Cleveland, OH 44122
(216) 464-3820

INSTANT TUNING!

"BLINKY" is also an accurate alignment tool for these modes.

See "A5" Review
in May 84 Issue!

"BLINKY", Model 959, measures only 2" x 3" x 5", and installs with no transceiver modification.

Model 60 power supply available for \$9.95.

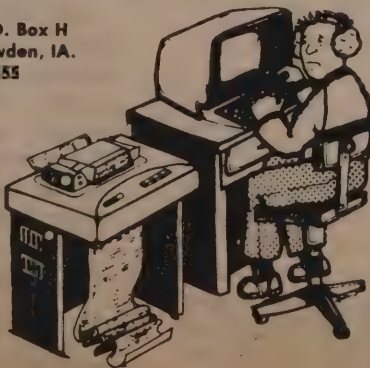
Add \$2.00 for shipping and handling. Ohio residents add 6 1/2% sales tax.

TRS80C* PACKAGES

CASSETTE \$19.95 DISK \$24.95

- Amateur Radio (25)
- Amateur-TV (25)
- Utilities-A (30)
- Utilities-B (30)
- Games-A (19)
- Games-B (19)
- Graphics (50)
- Music (25)

P.O. Box H
Lowden, IA.
52255



MICROWAVE PREAMPLIFIERS

Ampire 1690N:

- 1.6 to 1.8 GHz
- 25 dB gain
- 3.0 dB noise figure
- N connectors standard
- Use on GOES & METEOSAT systems

Ampire 2001:

- 2.0 to 2.6 GHz
- 20 dB gain
- 3.5 dB noise figure
- BNC connectors standard
- DC & RF cables included
- Use with microwave TV converters

Ampire 1690N \$139⁰⁰

Ampire 2001 \$129⁰⁰

Ampire 2001N \$149⁰⁰

Shipping: USA... \$2⁰⁰ Foreign... \$10⁰⁰

Data Service Company

3110 Evelyn Street
Roseville, MN 55113

612-636-9468

"SSTV-ON-THE-BANDS"

Don Fuller W2WHK

210 Utica Street

Tonawanda, New York - 14150

BAND CONDITIONS- Because of solar activity the bands have been very inconsistent. DX contacts have been down, lots of fade, and stateside propagation has only been fair. Many times I have listened for sked, nets, etc. only to receive noise and weak signals. Most of the time ten meters has been out, fifteen meters has been sporadic, twenty meters good at times, but has been mostly marginal, so reporting has been made more difficult. SSTV activity could be heard, but conditions did not warrant good contacts. This may be just conditions, or maybe with the advent of good weather in many parts of the country, the "Hans" will temporarily become outdoor enthusiasts 'til fall. Only time will tell.

IVCA NET- I have monitored this net on Saturday mornings in the past, but due to the difficulty in copying I don't have any information to pass on at this time. As far as activity goes I can usually hear W6QMC (Bob) from Pasadena, California and WA4CVS (Bill) who devotes a lot of time to Slow Scan. Bill is one of those fellows you don't forget because he has a variety of tapes. From 8 sec. B/W to color. (Many scan rates). I have worked Bill in the past when everyone was using 8 sec. frame rate. He has done very interesting Slow Scan pictures, and continues to improve his library of SSTV tapes.

SSTV MORNING NET- As I reported in the May issue, I have heard a group of Slow Scanners operating during the early "breakfast" hour. Starting at 6:30 EST using the W0LMD home brew converter. I intend to check in shortly and do additional reporting on this group. My vertical is quite noisy on 80 and not very efficient at times. I hope to be able to string up a dipole this summer for better listening. Anyone on the East Coast, who can copy the net and is interested in Robert Suding's converter would then get an opportunity to ask questions concerning this home brew project. I have written Elmer Boyer (W3YAH) for additional information and should be hearing from him shortly.

63MM CHALLENGES- Richard Thurlow believes he has a record for SSTV stations worked. He has 1,979 contacts. Can anyone top this? His activity started in 1972 and he has appeared in past issues of "A5". Thanks for the very nice letter, Richard!

WA7WOD- Sam has a color board for Video-Scan 1000. If enough people are interested, he can mass produce them which would bring the prices down. Anyone interested contact him. His Video-Scan has been modified for color and was shown at "Dayton". It had good quality according to those who viewed his demonstration.

OLDTIMER BACK ON SSTV- Walt Beda (W2ELF), having been off Slow Scan for a number of years, has recently purchased a "Robot" 400 and will soon be active in the Slow Scan

SLOW SCAN TV

Send your SSTV pictures and shack photos to W2WHK for publication in "A5"



ranks again. He is considering the "Robot" Retrofit 400C board, so that he may enjoy the fun of receiving and sending color pix. Walt's activities go back to the early '70's when he built a home brew, hand wired version of W0LMD's early scan converter. He still contemplates using his older keyboard and eventually putting his new TRS80 color computer to work in Slow Scan. Look for Walt soon. He is having his antenna system upgraded, so his signal should be good. Good luck Walt, in coming back to 14.230Mhz. Congrats, on the present of the TRS80 computer from your daughter.

ZS6BTD VISITS THE U.S.A.- Gerald Klatzko (ZS6BTD) paid a visit to the U.S. in April. He was a guest of Ron Flynn (K8BLU) just prior to "Dayton". He enjoyed the Dayton Hamfest and a short trip to Washington D.C., seeing some of the sights at our Nations Capital. From there he spent several days with Jim Young (K4T6C) and xyl, Peg. Jim and Peg treated Gerald to several side trips in and around Orlando, Florida, such as, the Epcot Center, Disney World, Sea World, and a boat trip via Jim's cruiser. Jim tells me he was a fine guest and never complained about the humidity of Florida. Hi! Gerald is active on 20.680 when the band is open so Slow Scanners continue to look for him. Jim has had good copy. I have worked Gerald several times, but propagation doesn't favor us too often.

K4T6C- James H. Young (St. Petersburg, Florida) has a very neat HI-RES. SSTV shack layout as can be seen in his photograph. His transceiver is a Kenwood TS-830-S., Linear amp. SB-220, and his antenna is a TH6DXX. Many other pieces of equipment are easily identified. He just recently procured a new Hi-Resolution video monitor to go with his MICROCRAFT Slow Scan gear. Quite often he is heard in the early morning hours exchanging pictures with W0QQD and his HI-RES Wraase SC-1 Converter at 14.230Mhz. THX for the real nice picture, Jim!

SLOW SCAN USING VCR- I own a "Sanyo" video tape recorder which I use for copying interesting events off commercial television. It is an excellent source of good high quality pictures for use on SSTV. Documentaries, sports, historical points of interest can be used, retaped for Slow Scan, or grabbed directly for Slow Scan viewing. Many times you look for good pictures from commercial TV and find nothing worthy of being xmitted via SSTV. The use of the VCR gives you an opportunity to store worthwhile pictures to use in your contacts.

SSTV PIX- There is a need for more shack pictures and information from you "A5" SSTV video buffs. 'Till next time. 73's De Don-W2WHK



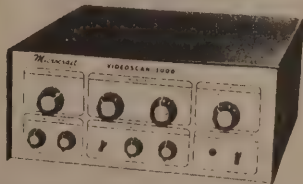
Popular 20 Meter HI-RES. SSTV'er K4TGC
Jim Young, 4821 26th Avenue
St. Petersburg, Florida 33713

Jim has been one of the most popular, regular active SSTV'ers "on-the-bands" for many years. His love is in High-Resolution Black/White SSTV Pictures transmissions. The K4TGC-SSTV Shack has all kinds of gear including Microcraft Videoscan 1000, Code Reader, Heathkit HF linear, Kenwood TS-830S and a TH6-DXX Antenna. Congratulations Jim, on being selected this months "A5 SHACK OF THE MONTH!"

Best Picture--Best Price--From \$495.00! HIGH RESOLUTION SLOW SCAN TV



Once you see our picture,
 you won't settle for anything less!



- Compatible • Multiple picture storage • Custom microprocessor
- 16 times better resolution • Call sign option • On screen cursor
- 64 levels of gray • Split screen

You already have everything you need to choose the best slow scan TV picture on the market today -- your own eyes! Hundreds of amateur radio operators took the opportunity to compare slow scan equipment on display at Dayton. "Show me!", they said. And we did! The result: Unanimous agreement by customer and competitor alike that VIDEOSCAN 1000 had the best picture -- best price. Seeing is truly believing -- and once you see a VIDEOSCAN picture you won't settle for anything less. Call or write for FREE brochures on the VIDEOSCAN 1000 and "Getting Started in SSTV". Or better yet, order your VIDEOSCAN 1000 today and see for yourself!

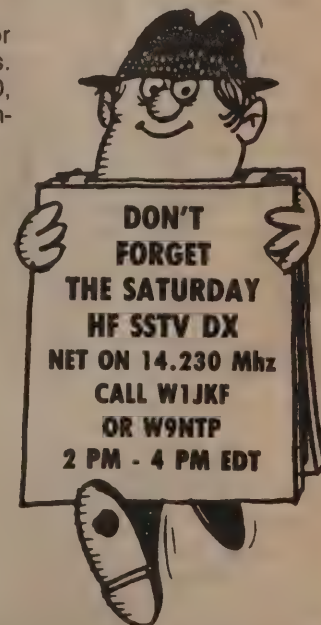
VIDEOSCAN 1000 Kit, VS-K . . . \$495.00

VIDEOSCAN 1000 Wired & Tested, VSF . . . \$695.00

Send check or money order. Use VISA or MasterCard. Add \$8.00 for shipping and handling in continental U. S. Factory Direct -- We're as near as your telephone.

Microcraft

Corporation Telephone: (414) 241-8144
 P. O. Box 513Q, Thiensville, Wisconsin 53092



A5 ATV MAGAZINE!

"Your Journal
 for the latest in SSTV
 News and Events. . ."

COMMSOFT

NEW "Deluxe" Apple SSTV System!

Photo Imager/Photoviewer Graphics Board Allows Even Better B/W and Color Pictures
Price Reduction on Basic Photocaster SSTV System Announced
by Howard Nurse

(EDITOR'S NOTE) Howard Nurse K6KLO of COMMSOFT has been providing a means for APPLE Computer users to get on SLOW-SCAN TELEVISION for several years now. The original "PHOTOCASTER" system works quite well, and does everything that the manufacturer claims. The COLOR SSTV hardcopy picture prints that Howard displayed at his booth at Dayton 1983 have yet to be matched by anyone else in the industry. Now the time is ready for better resolution-"Phase II"! If you own an Apple II Computer or are thinking about buying such a system, prices have been dropping. There just isn't any better time to make up your mind than now.

New "Photo Imager" SSTV System

The PHOTOIMAGER system from COMMSOFT transforms an Apple II Computer into a sophisticated image processing system for under \$1000! Designed for the Apple II, II+, or IIe, the PHOTOIMAGER System includes everything needed to take, display, communicate, and store high-resolution gray scale and color photos. Included in the package are the PHOTOCASTER video digitizer/SSTV modem board, PHOTOVIEWER color graphics display board, RS-170 vidicon TV camera, lense, tripod, connecting cables, RGB color separation filters, 4 software disks, and 2 reference manuals.

Resolution

Photos are taken with a resolution of 28-x-128 pixels, with 16 levels of gray in the black-and-white mode and 4096 colors per pixel in the color mode using color filters for separation. Photos may be taken with the video camera provided with the system or from a video tape recorder. The black-and-white camera may also be used directly with a monitor or with a video tape system. Enhanced photo display is achieved with COMMSOFT's new PHOTOVIEWER color graphics board. The graphics board features true 16-level gray scale, up to 256 colors per pixel, and up to 320-x-200 pixel resolution. Near TV quality images are provided by the high resolution and gray scale capabilities of the board.

"Photoviewer" Graphics Board (See Photo)

The PV-100 PHOTOVIEWER GRAPHICS BOARD from COMMSOFT provides true gray scale and up to 256 colors per pixel to enhance the graphics capability of the Apple II computer. The PHOTOVIEWER has two main operating modes, one emphasizing resolution and other emphasizing color range. With a resolution of 320-x-200 pixels, the board provides 16 levels of gray or 16 colors per pixel. A ROM in the output data stream allows one of the 16 palettes to be chosen for special effects. In the 160-x-200 mode, the board provides 16 levels of gray or 256 colors per pixel. Composite video, which can be recorded by most video tape recorders, is supplied by PHOTOVIEWER. A soft switch on the board allows a single monitor to be used for both normal Apple video and PHOTOVIEWER video signals. The PHOTOVIEWER

board requires a 48KB Apple II, II+, or IIe computer with at least one disk drive. The PHOTOVIEWER board can be used in any slot in the Apple except slot 0. The board is designed to be a companion to the COMMSOFT PHOTOCASTER video digitizer or a stand-alone graphics board. A disk provided with the board contains software to demonstrate the features of PHOTOVIEWER. Applications for the GRAPHICS board include computer graphics, image display, CAD/CAM, NAPLPS video, and computer art. The PHOTOVIEWER board is available directly from COMMSOFT for \$595 plus \$5 shipping/handling and applicable California sales tax.

Supplied Software

The integrated software package provided with the PHOTOIMAGER system contains many image enhancement functions in addition to facilities for taking, storing, displaying, and printing photos. PHOTOIMAGER supports the Epson MX/FX and Imagewriter printers for black-and-white prints. Applications for the PHOTOIMAGER system include computer graphics, image databases, portraits, image analysis, experimentation, amateur radio, low-resolution facsimile, plus much more! Beginning August 1st, the complete PHOTOIMAGER System (with all equipment mentioned earlier) including the new GRAPHICS BOARD will become available for \$995. It is interesting to note, that the Apple II Computer prices including a disk drive has dropped significantly in the past year. Where unadvertised prices of \$1200-1400 was not uncommon, the "official" price today stands at \$995-although I have seen them advertised for closer to \$800. If you add the price of our "basic" PHOTOCASTER (and use your own TV set as a monitor), it should be possible to set up an Apple II SSTV System for under \$1100. This is a far cry from the \$2500 it would have cost one year ago! For further information on the price-reduced COMMSOFT PHOTOCASTER basic and new PHOTOIMAGER deluxe SSTV System, please contact us directly. 73's "A5" SSTV'ers de K6KLO.

COMMSOFT "Photo Imager" System To Be At Fall ATV Conference?

EDITORS FINAL NOTE: If you would like to see a first hand demonstration of the COMMSOFT PHOTOVIEWER SSTV System, arrangements are being made to have a working system at the September 1984 A5/USATVS FALL ATV CONFERENCE in Chicao (see information on Channels 2 & 3). A5/USATVS Member and SSTV supporter Clyde Miller WB4AOH of Owensboro, Kentucky demonstrated the COMMSOFT PHOTOVIEWER SSTV System at the Friday Night SSTV Get-together Meeting this year at Dayton 84 and is currently demonstrating the system at other midwestern hamfests. If an agreement can be reached, Mr. Miller will attend the FALL ATV CONFERENCE as well. -4800CD

Remember, You Saw It First In "A5"!

Apple II Slow- Scan TV



PhotoCaster...

A feature packed system to take, store, transmit and receive color and black-and-white photos with your Apple II computer.

NOW AT REDUCED PRICES!

Basic Board Setup **\$295.00**
Deluxe System (Camera, Filters, Cables & Tripod) **\$495.00**

- 15-day money back trial on factory orders.
- Write or call for details.

Visa and MC orders accepted. Add \$5 (PC100) or \$10 (PC-101) for shipping and handling. CA res. add applicable sales tax. Dealer inquiries welcome.

Apple II TM Apple Computer, Inc.
PhotoCaster TM COMMSOFT, Inc.

COMMSOFT

665 Maybell Ave., Palo Alto, CA 94306 • (415) 493-2184

COMPUTER TRADER MAGAZINE

*** LIMITED TIME OFFER ***
BAKER'S DOZEN SPECIAL!
\$12.00 for 13 Issues

Regular Subscription: \$15.00 Year
Foreign Subscription: \$55.00 (air mail)
\$35.00 (surface)

Articles on MOST Home Computers, HAM Radio, hardware & software reviews, programs, computer languages and construction, plus much more!!!

Classified Ads for Computers & Home Radio Equipment

FREE CLASSIFIED ADS
for subscribers

Excellent Display and Classified Ad Rates
Full National Coverage

CHET LAMBERT, W4WDR

1704 Sam Drive • Birmingham, AL 35235
(205) 854-0271
Sample Copy \$2.50

FROM WB4ESF:

THE BEGINNER'S GUIDE BOOKLET SERIES

Presents: Robot 400 mods #110

48 pages of popular "A5" Robot 400

Articles and modifications.

Send \$5.00 (plus \$1.00 postage) to
A5 MEMBERSHIP SERVICES

P.O. Box H,

Lowden, Iowa 52255

IN OUR NEXT ISSUE:

Commsoft "Photo Imager"

Users Report By

Clyde Miller

WB4AOH

STAY TUNED-IN WITH "A5"!

FACSIMILE

COPY SATELLITE PHOTOS,
WEATHER MAPS, PRESS

The Faxes Are Clear — on our full size (18-1/2" wide) recorders. Free Fax Guide.

TELETYPE

RTTY MACHINES, PARTS, SUPPLIES

ATLANTIC SUPPLY SALES (800) 275-0000
3100 NANTUCKET AVE. BIRMINGHAM, AL 35202



"New COMMSOFT PV-100 SSTV Graphics Board"

NEW JAPANESE COLOR-SSTV CONVERTER!

MODEL UC-5503 UNIT RELEASED IN ORIENT*

"A5" FOREIGN REP. JG10DT REPORTS:

Hello A5/USATVS Members! This is JG10DT reporting about our new JAPANESE Color SSTV Converter-the Model UC-5503! At present, the big feature for this machine for HF to UHF's video QSO's is the RGB selection circuit which will be able to automatically load each memory Red, Green and Blue SSTV signal. In the Auto position the UC-5503 will automatically memorize at each R,G, or B. The manual position selects indicated memories at R,G, or B. Special LED's light up at writing or reading each color frame as it occurs. The color or manual switch selects color or B/W SSTV.

Features

Program source inputs for the UC-5503: You can use a normal CCTV camera, color CCTV camera, Video Tape Recorder Home Television and other Video Signal equipment. There is also SSTV recording tape position for input SSTV Signal terminal. This SCFM system is same as other worldwide popular SSTV systems and easily QSO's to other brands of SSTV equipment. The Memory Control circuitry on the UC-5503 allows the ordered SSTV Signal to be converted from each end of picture per 1/60 seconds for 1C video memories. If the sample is a moving picture, it will send picture at each frame. If the shot button is pushed, the operator will not have to wait 8 seconds for a renewed picture. The UC-5503 Chassis is all painted finished. The PCB boards are constructed with all glass epoxy materials. All Semi-conductors are communication type accepted. Component parts, temperature assurance, 1% metal resistor, mica condenser for A/D converter division, analogue division type. The Power Transformer is of cut core type.

Specifications

UC-5503 Color Scan Converter UC-5503 Specifications;
(1). SSTV STANDARD SYSTEMS; SCAN LINES: 128. SYNC SYSTEM: Un-power or power sync. LINE FREQ.: 60/4=15Hz (60Hz/525 line). 50/3=16.67Hz (50Hz/625 line). PICTURE NUMBERS PER SECOND: 15/128=1/8.53 sheet (60Hz/525 line). 16.67/128=1/7.68 sheet, (50Hz/625 line). VERTICAL/HORIZONTAL ratio: 1:1. POLARITY OF VIDEO MOD.: Positive. MOD. SYSTEM: Sub-carrier Freq. Mod. (SCFM). FREQ. FOR VIDEO: White- 2.300Hz, Black- 1.500Hz and Sync- 1.200Hz. BAND WIDTH: about 2.8 KHz. SYNC PULSE WIDE: horizontal- 6 msec, Vertical- about 60 nsec. SCAN DIRECTION :H-Left to Right, V- Upper to Lower side. (2). FAST SCAN IN-PUT SIGNAL (Standard Television Signal). SCAN LINES: 525 line (Semi-Japanese Television system), 625 line (CCIR Television system). HORIZONTAL SCAN FREQ.: 15.750Hz (525 line), 15.625Hz (625 line). PICTURE NUMBER PER SECOND: 30 sheet (525 line), 25 sheet (625 line). V/H RATIO: 3:4. POLARITY OF VIDEO MOD.: Sync. Negative. VOLTAGE OF INPUT SIGNAL: Mix Sync Video Sig. 1.0V p-p. INPUT IMPEDANCE: 75 ohms. (3) SUBCARRIER FM MOD INPUT SIG. (SCFM Input Sig.) INPUT VOLT: 40mV to 6V p-p. INPUT IMPEDANCE: 1k ohms. (4) MONITOR OUTPUT SIGNAL: SCAN LINES: 263 line Non-interless. HORIZONTAL SCAN FREQ.: 15.8kHz, VERTICAL SCAN FREQ.: 60Hz. EFFECTIVE PICTURE RATIO: 1:1. EFFECTIVE VIDEO NUMBERS: 128x128 Dot-interless. POLARITY OF VIDEO SIG.: Sync. CHANNEL 30

Negative. OUTPUT VOLT: Mix. Sync Video Sig. 1.0V p-p. MONITOR OUTPUT SIG.: RGB VIDEO ANALOGUE SIG. 0.7V p-p 75 ohms Pos. HS HORI. SYNC SIG. 1.0V p-p 75 ohms Neg. VS VERT. SYNC SIG. 1.0V p-p 75 ohms Neg. CS MIX SYNC SIG. 1.0V p-p 75 ohms. (5) SUB-CARRIER FM MOD OUTPUT SIGNAL; OUTPUT VOLT: 0.3Vp-p to 2V p-p continue variable. (6) WAVE MON. OF OUTPUT SIGNAL SCOPE (oscilloscope) Switchable the following two types as follows; FAST SCAN- fast scan mix sync video signal output Volt- 3V p-p. OUTPUT IMPEDANCE: about 1k ohms, high impedance matching. POLARITY: sync neg. (7) HOME TYPE TELEVISION MON. OUTPUT FOR B/W AT RF OUTPUT CHANNEL- 1ch, 2ch switchable. (8) MEMORY CAPACITY; VIDEO LINE: 128x128 3 multi. VIDEO TONE: 4 bit 3 multi. (9). USE SEMI-CONDUCTOR NUMBERS; TRANSISTER: 23, DIODE: 27, LED DIODE: 19, IC: 115. (10) DIMENSION: 100 x 315 x 380. (11). WEIGHT: less than 6.5kg. (12). POWER CONSUMPTION: AC100V, about 40W. (13). POWER SOURCE: AC100V. **SSTV MODE IS F5. ** One picture sending time needs about 25 seconds. For more information "A5" readers may contact: Command Company: HEAD OFFICE + FACTORY: 501-2 Kitano-cho, Hachiohji-city Tokyo, Japan, P.O. 192. Phone: 0426-44-2877.

(*See Channel 30 Photo/Ad)

"Keep up with what's happening in SSTV today with a subscription to A5!"

SAVE BIG DOLLARS ON K6AEP

TRS80C COLOR COMPUTER INTERFACES!

Build Your Own CW/RTTY/SSTV
Interfaces for your CO-CO
With Our Quality Circuit
Boards and Parts Kits!
CW/RTTY/SSTV/FAX

MODEL DESCRIPTION	BOARD KIT	BOARD & PTS
W-1A Receive & Transmit	\$ 5.00	
Relay Key		\$20.00
Solid State Keying		\$22.00
W-2 RTTY Transmit Modulator	\$ 3.00	\$16.00
W-3A SSTV Transmit Modulator	\$ 3.00	\$25.00
W-5 SSTV Receiver	\$ 7.00	\$25.00
W-6 RS 232 for TU-170	\$ 2.50	\$ 5.00
W-7 Serial to Parallel MX-80	\$ 6.00	\$38.00
W-8A Video Amp for TRS-80C	\$ 6.00	\$12.00
W-9 SSTV Rec. for Robot 100	\$ 5.00	\$ 9.00
W-10 Ralph Taggart (WEFAX)	\$15.00	\$50.00

NO PHONE ORDERS PLEASE!

(Send SASE for Catalog)

Add \$2.00 for 1st class
shipping/handling, Iowa residents
add 4% sales tax.

RTM CIRCUIT BOARDS
205 ELM STREET
VAN HORNE, IOWA 52346

SPECIALIZED COMMUNICATIONS

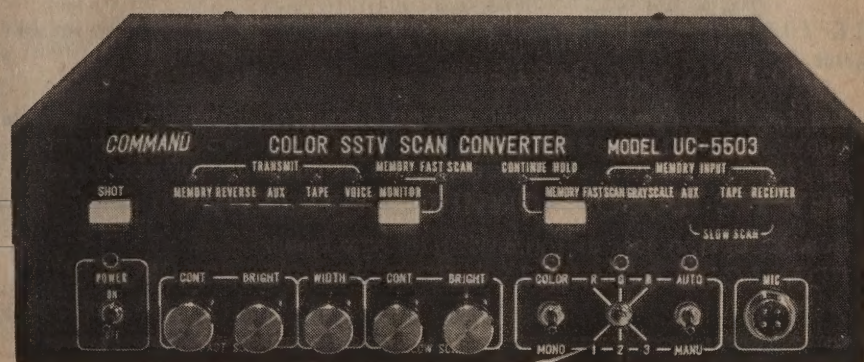
MODEL UC-5503

今、全世界を画像通信で結ぶ話題の

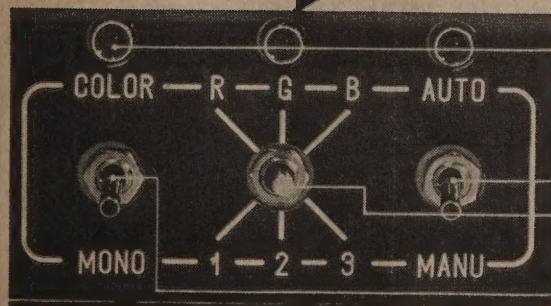
カラースキャンコンバーター HF~UHF

新登場

¥145,000

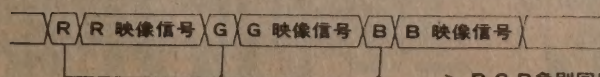


"You saw it first
in A5!"



- AUTO 当社開発のR、G、B色別回路の動作に依り、各メモリーへの書き込み、読み出しを自動的に行います。
- MANU 中央のスイッチで選択されたメモリーへの書き込み、読み出しを行います。
- LED 書き込み及び読み出し中のメモリーを表示します。
- R、G、B 1 2 3 カラー用 } メモリー選択スイッチ
モノクロ用 }
- COLOR MONO 任意にカラー、モノクロと使い分けるスイッチです。

※R、G、B色別回路（当社特自の技術を結集して新開発）の採用によりR、G、Bの映像を各メモリーへ記録しますので安心して、はじめての方にもご使用頂けます。



注意）R、G、B色別回路は、当社UC-5503を使用して送受信したときのみ作動します。

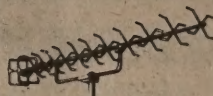
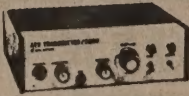
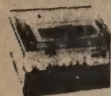
"Serving A5 ATV Magazine and the USATVS"

AMATEUR TELEVISION MAGAZINE



members' ads

"FREE TO SUBSCRIBERS"



ATTENTION SSTV'ers! Tune in on the KSWF Louisiana World Fair Exposition Amateur Radio SSTV Station. Running May 12th to Nov. 11th, 1500-0100 UTC. We are on all bands, all modes (SSTV 14.230 Mhz). For a special QSL card send SASE to 221 Hiway Drive Metairie, LA. 70121.

NOTICE- I like to collect ATV QSL cards. How about sending me yours, I'll send you mine. See my QSL card in July 84' A5 Magazine. John Ruckert WB6ZPN 953 South Beacon Ave. Los Angeles, CA. 90015.

FOR SALE- 8-4116 RAM CHIPS. \$5.00 plus 50 cents shipping. Also 8-4517 RAM CHIP (5V 4116) \$10.00 plus 50 cents shipping. John Greve W9RI 4211 7th Ave. Rock Island, ILL. 61201.

WANTED- Vidicon 8758A or equivalent, used and serviceable. Also type 7551 and 7558 power tubes. Also operational manual for Jerrold TVC500 camera. T. Drogoski 507 Coal Valley Rd. Clairton, PA. 15025.

SSTV- 1" Video on audio cassette, customized with your call, name Qth, greetings, 73's and other information (rig, occupation, etc.) up to 32 characters (counting spaces). \$9.00. Satisfaction guaranteed! W4SCYR Dan Grisham, P.O. Box 188 Bruce, MS. 38915.

HELP! Does anyone have any information on a color board for an AMPEX TV recorder? I have one in excellent condition. Send info to Rev. J.R. Mc Avey, c/o Providence College, Providence, Rhode Island 02918. Thanks A5!

FOR SALE-Wideband Microwave Downconverter Pkg. High quality 20" Spun Aluminum Dish Type 2.1-2.7 Ghz. continuous tuning, 25 db gain-\$97.00 (ppd. with 10 day return privilege). Inquire answered by mail only. James Pann, P&L Associates, 5818 Santa Cruz Ave, Richmond, California 94804.

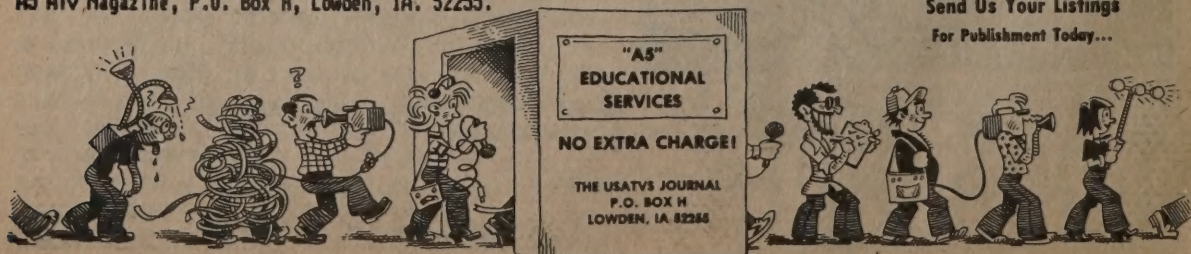
ATTENTION FSTV/VCR VIDEO BUFFS! We have obtained SIX of the FAMOUS "Rare" MITSUBUSHI P50U VIDEO PRINTERS! The source cannot be recognized. These are new machines. Paper is available thru MITSUBUSHI direct (write to them after you get your machine and give Serial Number. 1 roll 220 pictures/4 rolls per case/about \$20 per case). Price is \$500 plus \$10 shipping U.P.S. First certified Bank Drafts get the units-others returned immediately if sold out. Contact QCD Marketing Services, P.O. Box H, Lowden, Iowa 52255 by mail. Sorry, U.S.A. USATVS Members only.

FOR SALE-ICOM IC-R70 Communications Receiver, \$450. HAL Telereader Model CWR6850, \$550. Kenwood TS130S Transceiver \$450, PS-30 Pwr Supply, \$75. TEN-TEC OMNI D Series B with 10 & 24.5 Mhz., \$400, Remote VFO, \$75. ICOM 505 6 Meter Transceiver, \$350. DENTRON Clipperton-L HF Amp (incl 10 Mtrs), \$400. JW Miller AT2500 Auto Ant. Tuner, \$450. Palomar HF Preamp, \$90. AEA Moscow Muffler Woodpecker Blanker, \$90. HYGAIN 10 Mtr Long-John 5 ele. Yagi, \$60, 15 Mtr LJ 5 element Yagi, \$60, TH3 Tri-bander Yagi, \$60. Contact Rev. Bob Foster KD0LG, RR#2, Cedar Rapids, Iowa 52401 (319) 848-4033.

"A5 CLASSIFIED ADS" are FREE to USATVS Members! Commercial Ads 10 cents per word. Send us your listings today to P.O. Box H, Lowden, Iowa 52255. Please mark "A5 CLASSIFIED AD" on the front of the envelope or post card.

A5 ATV Magazine, P.O. Box H, Lowden, IA. 52255.

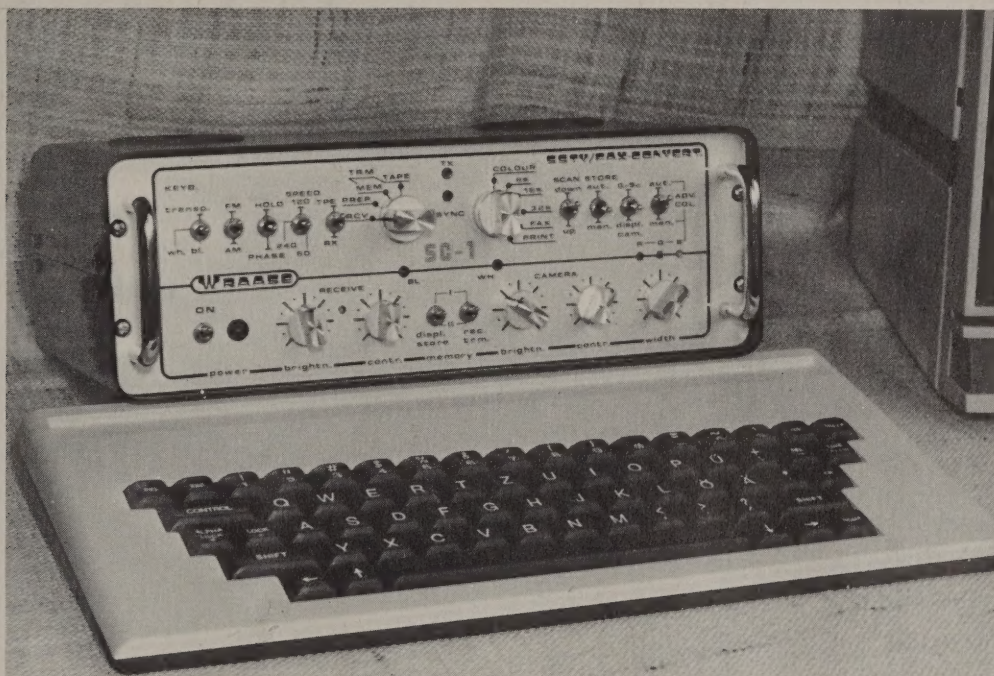
Send Us Your Listings
For Publication Today...



INTRODUCING THE PORTABLE WRAASE SC-1 "DUAL MODE" SSTV/FAX CONVERTER

A COMPLETE UNIVERSAL DIGITAL VISUAL COMMUNICATION SYSTEM FOR RADIO OR LANDLINE TRANSMISSIONS AT A VERY COMPETITIVE PRICE!

HANDBUILT DIGITAL IMAGE PROCESSORS



SC-1 SSTV/FAX Converter and KB-1 Keyboard

The newest in a fine line of quality high-resolution state of the art digital television converter equipment imported directly from Germany. This "complete" video system offers 128x128 second, 256x128 16 second, 256x256 32 second black & white SSTV receive or transmit capability or exceptional frame sequential (RGB), line sequential "true" 256x256 hi-resolution color with up to 6 B/W pictures storage memories! Special BLACK/WHITE/SYNC LED's ensure perfect "on frequency" alignment. A great "automatic" frame grab circuit provides ease of loading, colorflash and "motion" SSTV pictures! In the Fax Mode, the SC-1 will receive 60, 90, 120, 240, 360 and 480 line per minute rates (automatic phasing on 300 HZ. Start signals such as GOES, METEOSAT or WEFAX) of selectable AM/FM facsimile pictures and transmits at the 240 line rate! Pictures stored in memory can be cross-coded for retransmission. While other systems are still experimenting with 8 or 16 grey levels, the WRAASE SC-1 displays, on your screen 64 actual levels! This makes for excellent detailed photographs ideal for landline conference calling. The small and rugged construction (12x4x7 inches) along with a protected 13.8 VDC required power supply terminal makes the SC-1 the world's "first" universal mobile SSTV/FAX converter. And, as if that isn't enough, we have an optional (128x128x16 shade) hardcopy internal printer interface, a neat little video light pen and a fantastic multi-colored graphics keyboard generator. "Why settle for anything less?"



Designer/Engineer Volker Wraase

SC-1 SSTV/FAX Converter	\$1295.00
KB-1 Color Graphics Keyboard	239.00
LP-1 Video Light Pen	79.00
PI-1 Computer Printer Interface	129.00
FX-655 FAX Only Hi-Res. Receiver	895.00
SC-422A Color/BW SSTV Converter	795.00
SC-160 SSTV Transmit/RCV Kit	299.00
SC-140 SSTV RCV Only Kit	199.00
P50V MITS Video Printers	TBA

U.S. Customs Fees Now Included In Prices
Deliverable From Germany Right To Your Door!
Send SASE For Free Information

"Serviced And Distributed In The U.S.A. By"

INTERNATIONAL SALES & MARKETING

A Division of QCD Publications, Inc.

804 Jefferson Avenue
Lowden, Iowa 52255



Attention "A5/USATVS" Members; We Have
VIDEO PRODUCTS FOR EXPERIMENTERS,
AMATEURS and INDUSTRIAL USERS
AROUND THE WORLD!!

FSTV, SSTV or FAX,
LIGHTS or NO LIGHTS...



We've got a camera
to meet your most
demanding needs!!



IMAGE-21/KOYO CCTV LINE

MODEL 5100-2 Vidicon Camera (B-W). 2/3" separate mesh. 10,000:1 ALC. 600 lines. White clip circuit. 120VAC. List \$270. Your cost less lens \$186. With 16mm F1.6 lens, \$199.

MODEL 5100-6 Same as above but 24VAC version. Same prices as above.

MODEL TVC-999-2 Vidicon Camera (B-W). 1" tube. 0.5 ft candle sens. 25,000:1 ALC. 600 lines. White clip. UL listed. 120VAC List \$320 less lens. Your cost \$256. With 25mm lens \$285.

MODEL TVC-5210-2SU Ultricon (Silicon) Camera (B-W). Very high sensitivity (.05 ft candle). 200,000:1 ALC. 600 lines. Int. EIA 2:1 interlace/External sync provision. White clip. "Operates on the light of a match!" List \$900. Special discount cost less lens \$675.

Model TVM-90(Grey) 9" industrial CCTV monitor \$194.
Model TVM-90AC (Almond) 9" computer monitor \$199.
Model V-100 12" consumer monitor (CCTV, cptr) \$135.
Model V-100G 12" consumer monitor green screen \$155.

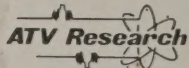
**Many other monitors, cameras, kits and parts available. **



NEW CATALOG NO. 822A

REQUEST A COPY
TODAY!

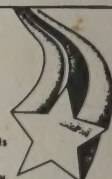
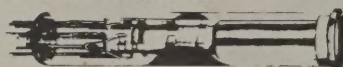
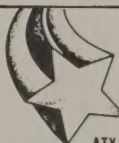
DIAL : 402-987-3771
or
WRITE



1301-5 BROADWAY DAKOTA CITY, NE. 68731

"Mfg. for the video industry for over 18 yrs."

VIDICON CAMERA TUBES



ATV RESEARCH offers a wide selection of vidicon tubes to meet the diversified needs of budget-conscious industrial, educational, experimental and consumer applications.

5,000 to 10,000 HOURS AVERAGE LIFE • OVER 600 LINES CENTER RESOLUTION
IDEAL FOR DIRECT REPLACEMENTS • FULLY GUARANTEED

2 1/2" VIDICONS

20PE11	Industrial grade (best)	\$50.00
20PE12A	Industrial grade	\$2.00
20PE14	Industrial grade	\$7.00
20PE19	Industrial grade	\$7.00
20PE20	Industrial grade	\$4.00
8823	Industrial grade	\$1.50
8844	Industrial grade	\$4.50
8929	Industrial grade	\$1.00
S4075	Newicon (for low light cameras) ..	\$50.00

1" VIDICONS

7735A(I)	Industrial grade (best)	\$49.95
7735A(C)	Commercial grade (medium sens.) ..	\$9.95
7735A(H)	Amateur grade	\$9.95
7735A(E)	Experimental grade (new or used) ..	\$9.95
7735A(U)	Used (pulled from commercial equip.) ..	\$9.00
7262A	Industrial grade	\$5.00
8756A	Industrial grade	\$9.95

"BETTER VIEWING THROUGH BETTER TUBES"

COMPUTERS * SOFTWARE * MODULATORS * ETC

Model APX-800A APPLE-VERTER RF module for Apple II, II+, IIe and similar type computers. Powers from computer. High VHF (ch. 7, 8, 9 or 10). \$32.00

ORANGE PEEL COMPUTER runs all Apple disk driven programs. Ideal for a second computer or for anyone desiring an Apple-compatible system. 64K Dynamic Ram. 12K Static RAM. 3-1/0 ports expandable. Detachable keyboard, graphics, game paddle port plus MANY other features. It's quite a piece of fruit! Be sure to get FULL DETAILS in our new 1983 revised Video Catalog! ORANGES are truly a-PEEL-ing!
Model OP-76K Orangepeel 6502 based computer w/keyboard (sug. list \$795.00) Your cost \$640.00 (250 or more programs included free.)

SHUGART DISK DRIVES (Apple compatible)\$299.00
DI-11 Apple Compatible Disk Interface card.....\$89.00

"Better viewing in '84"

A5 AMATEUR TELEVISION MAGAZINE, P.O. BOX H, LOWDEN, IOWA 52255-0408
2ND CLASS, BULK RATE PERMIT #944960, ISSN #02794772 PAID AT LOWDEN, IOWA
WITH ADDITIONAL ENTRY AT DAVENPORT, IOWA. ATTENTION POSTMASTER:
ADDRESS CORRECTION REQUESTED. SEND TO:

